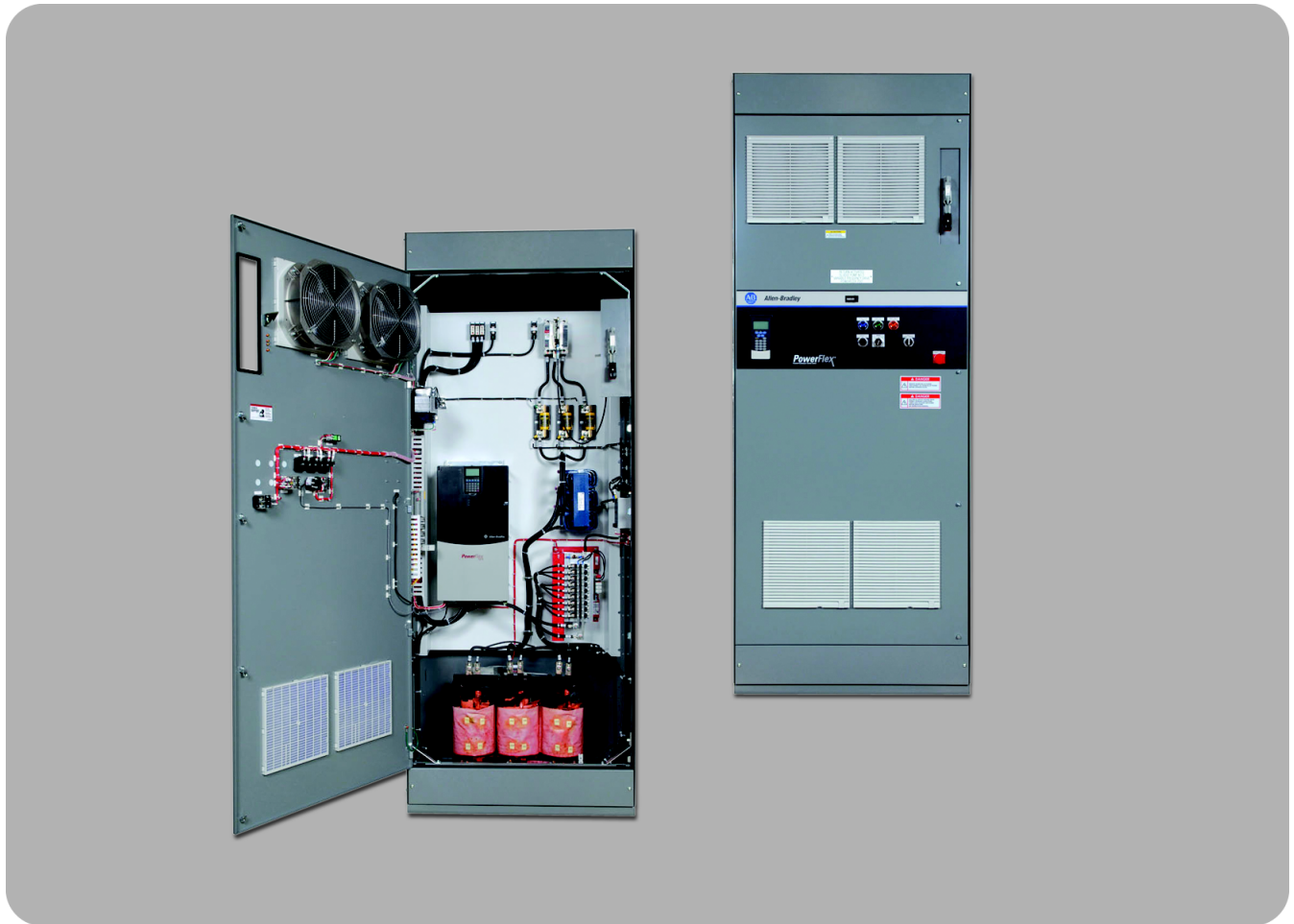


PowerFlex 700 and 700H Packaged Drives

Technical Data



LISTEN.
THINK.
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Overview

The heart of every PowerFlex 700/700H packaged drive package is a PowerFlex Adjustable Frequency Drive. The packaged drives program provides PowerFlex700/700H drives packaged with a much larger offering of factory mounted options than what is normally available with a standard product.

This document contains information related to the Rockwell Automation PowerFlex 700/700H packaged drives program and is intended to provide information related to drive packaging features, option descriptions, dimensional and layout information. See [Options on page 9](#) for information on specific drives.

Important: While this information may be useful in specifying and application of a Packaged PowerFlex 700/700H AC drive, be advised that this information is for Reference Only and subject to change at any time.

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Reference Materials

For additional PowerFlex 700 and 700H data and general drive information, refer to the following publications.

Title	Publication	Available Online at...
PowerFlex 700 Technical Data	20B-TD001...	www.rockwellautomation.com/literature
PowerFlex 700 User Manual	20B-UM002...	
PowerFlex 700 Installation Instructions - Frame 0...6	20B-IN019...	
PowerFlex 700H Technical Data	20C-TD001...	
PowerFlex 700H Installation Manual - Frames 9...14	PFLEX-IN006...	
PowerFlex 700H Programming Manual	20C-PM001...	
PowerFlex Reference Manual	PFLEX-RM004...	
PowerFlex 700/700H 18 Pulse CSI Specification	PFLEX-SR001...	
Wiring and Grounding Guidelines for PWM AC Drives	DRIVES-IN001...	
Preventive Maintenance of Industrial Control and Drive System Equipment	DRIVES-TD001...	
Safety Guidelines for the Application, Installation and Maintenance of Solid State Control	SGI-1.1	

Catalog Number Explanation

PowerFlex 700

Contact your Rockwell Automation representative for product option rules.

1-3		4	5-7		8	9	Position					16	17-18	19-20	22-23		
21B		D	2P1		A	3	A	Y	N	A	R	C	0	NN	NN	-	ND
<i>a</i>		<i>b</i>	<i>c</i>		<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>	<i>l</i>	<i>m</i>	<i>n</i>	-	<i>o</i>

<i>a</i>	
Drive	
Code	Type
21B	PowerFlex 700

<i>b</i>				
Voltage Rating				
Code	Voltage	Ph.	Pulse	Type
D	480V AC	3	6	SA
U	480V AC	3	18	SA

<i>c1</i>			
Rating			
Output @ 480V, 60 Hz Input			
Code	Amps ‡	ND Hp	HD Hp
1P1	1.1	0.5	0.33
2P1	2.1	1.0	0.75
3P4	3.4	2.0	1.5
5P0	5	3.0	2.0
8P0	8	5.0	3.0
011	11	7.5	5.0
014	14	10	7.5
022	22	15	10
027	27	20	15
034	34	25	20
040	40	30	25
052	52	40	30
065	65	50	40
077	77	60	50
096	96	75	60
125	125	100	75
156	156	125	100
180	180	150	125
248	248	200	150

‡ Normal duty continuous amps.

<i>d</i>	
Enclosure	
Code	Enclosure
A ➤	IP20, NEMA/UL Type 1
H ➤	IP54, NEMA/UL Type 12 w/Fan & Filter
B ※	NEMA/UL Type 1 MCC

➤ 6 Pulse Drives Only - Floor Mount Rittal Enclosure (Frames 5 & 6) or Wall Mount Hoffman Enclosure (Frames 0...4).

※ 18 pulse drives only.

<i>e</i>	
HIM	
Code	Version
0	No HIM - Blank Plastic Inserted (Drive Mounted)
3	Full Numeric LCD HIM (Drive Mounted)
5	Programmer Only LCD HIM (Drive Mounted)
A	Drive Mounted LCD Full Numeric & Door Mounted Bezel w/Blank Cover, NEMA/UL Type 1
C	Door Mounted Bezel w/LCD Full Numeric, NEMA/UL Type 1
E	Drive Mounted LCD Full numeric & Door Mounted Bezel w/LCD Programmer Only, NEMA/UL Type 1
F	Drive Mounted LCD Full Numeric & Door Mounted LCD Full Numeric, NEMA/UL Type 1/12
G	Drive Mounted LCD Full Numeric & Door Mounted Programmer Only, NEMA/UL Type 1/12
J	Door Mounted Full Numeric LCD HIM, NEMA/UL Type 1/12
K	Door Mounted NEMA/UL Type 1/12 Programmer Only
L	Door Mounted NEMA/UL Type 1/12 Bezel, No HIM, Blank Cover Inserted, NEMA/UL Type 1/12

<i>f</i>	
Documentation	
Code	Type
A	User Manual (Standard)

<i>g</i>	
Brake	
Code	w/Brake IGBT
Y	Yes (Standard for Frames 0...3)
N	No (Standard for Frames 4...6)

<i>h</i>	
Brake Resistor	
Code	w/Internal Resistor
Y	Yes (Frames 0...2 Only)
N	No (Standard)

<i>i</i>	
Emission	
Code	Rating
A §	Filter w/CM Choke
C ※	CM Choke Only

§ Standard for 480V, 6 pulse.
 ※ Standard for 480V, 18 pulse.

<i>j</i>	
Comm Slot	
Code	Version
C	ControlNet (Coax)
D	DeviceNet
E	EtherNet/IP
I	Interbus
P	PROFIBUS
R	Remote I/O
S	RS485
N	None
H	HVAC

<i>k</i>		
I/O		
Code	Control	I/O Volts
C	Vector	24V DC
D	Vector	115V AC

<i>l</i>	
Feedback	
Code	Type
0	None
1	12V/5V Encoder

<i>m</i>	
Reserved	

<i>n</i>	
Special Firmware	
Code	Function
NN	None

O

Options

Code	Description
-ND §	Normal Duty
-HD §	Heavy Duty
-B0 §	Bypass Not Required
-B1/B51 §*	Manual Bypass
-B2/B52 *	Auto Bypass
-C1 §	Drive Only Control Power
-C5 §	115V User Supplied Control Power
-E9	Nameplate, Door Mounted
-G1	Johnson Controls Metasys® Interface
-J1	Aux. Contacts, Control Power On
-J2	Aux. Contacts, Drive Fault
-J3	Aux. Contacts, Alarm
-J4	Aux. Contacts, Run
-J5	Aux. Contacts, At Speed
-J8/J58 *	Motor Heater Control, Remote Power (180W Max.)
-L1 *%†	3% Input Line Reactor
-L2 %†	3% Output Load Reactor
-M3	Motor Run Meter, Drive/Bypass
-N1	Motor Run Meter, Drive/Bypass
-N2	Isolated Analog Input, 4-20 mA
-N3	Isolated Analog Output, 0-10V DC
-N5	Building Mng. Control Interface
-P1 §*	No Input Protection
-P2 §	Input Fuses, Drive
-P3 §	Circuit Breaker, Drive
-P4 §	Circuit Breaker, Drive/Bypass Mode
-P6 §	Fused Disconnect Switch, Drive
-P7 §*	Fused Disconnect Switch, Drive/Bypass Mode
-P8 §†	Disconnect Switch (Non-Fused), Drive/Bypass Mode
-P10 §†	Fuse Block (No Fuses), Bypass Mode Only
-P11 %	Contactor, Drive Input
-P12 %	Contactor, Drive Output
-S1/S51 *	H/O/A S.S. (Start/Stop/Spd. Ref.)
-S9/S59 *	Run Pilot Light
-S10/S60 *	Drive Fault Pilot Light
-S11/S61 *	At Speed Pilot Light
-S12/S62 *	Drive Alarm Pilot Light
-S13/S63 *	Control Power On Pilot Light
-S14/S64 *	Drive & Bypass Mode Pilot Lights
-S15/S65 *	Bypass Mode & Auto Bypass En. P.L.
-S16/S66 *	Drive/Bypass (B1/B51, if present) Disable Mushroom P.B.
-S17/S67 *	Motor Fault Pilot Light
-S18/S68 *	Speed Potentiometer (1-Turn)

§ Must select either -ND or HD, Bypass option -B0 or B1, Power Disconnecting Means option -P1, P2, P3, P4, P6, P7, P8 or P10 and Control Power option -C1 or C5.

* Denotes 800F/800T device. When selecting multiple options, Do Not combine 800F and 800T devices (all devices must be the same type).

% Available only with 480V, 6 Pulse drives.

* Standard with 480V, 18 Pulse drives.

† Available only with 480V, 18 Pulse drives.

PowerFlex 700H

Contact your Rockwell Automation representative for product option rules.

Position														
1-3	4	5-7	8	9	10	11	12	13	14	15	16	17-18	19-20	22-23
21C	D	261	B	0	A	N	N	B	N	B	0	NN	NN	- ND
<i>a</i>	<i>b</i>	<i>c</i>	<i>d</i>	<i>e</i>	<i>f</i>	<i>g</i>	<i>h</i>	<i>i</i>	<i>j</i>	<i>k</i>	<i>l</i>	<i>m</i>	<i>n</i>	<i>o</i>

a

Drive	
Code	Type
21C	PowerFlex 700H

d

Enclosure	
Code	Enclosure
B	IP 20, NEMA/UL Type 1, MCC Style

h

Brake Resistor	
Code	w/Resistor
N	No

b

Voltage Rating			
Code	Voltage	Ph.	Pulse
D	480V AC	3	6
U	480V AC	3	18

e

HIM	
Code	Operator Interface
0	Drive Mounted Blank Cover
M	Door Mounted Programmer Only (NEMA/UL Type 1)
P	Door Mounted w/LCD Full Numeric (NEMA/UL Type 1)

i

Internal EMC Filter & Common Mode Choke		
Code	CE Filter	CM Choke
B ‡	Yes	No
N ※	No	No

※ Must be selected with 480V, 18 pulse drives.
‡ Must be selected with 480V, 6 pulse drives.

c

Rating ✱		
480V, 60Hz Input		
Code	Amps - ND (HD)	Hp - ND (HD)
261 *※	240 (180)	200 (150)
300 *※	300 (240)	250 (200)
385 *	361 (302)	300 (250)
460 *	414 (361)	350 (300)
500 *	500 (414)	450 (350)
590 *	590 (515)	500 (450)
650 *	590 (590)	500 (500)
730 *	708 (590)	600 (500)
820 *‡	820 (708)	700 (600)
920 ‡	920 (820)	800 (700)
1K0 ‡	1030 (920)	900 (800)

f

Documentation	
Code	Type
A	User Manual

g

Internal Brake IGBT	
Code	w/Brake IGBT
N	No

j

Internal Communication Adapters	
Code	Version
B	BACnet MS/TP
C	ControlNet (Coax)
D	DeviceNet
E	Ethernet/IP
H	HVAC
I	Interbus
N	None
P	PROFIBUS
R	Remote I/O
S	RS485

✱ 700H drives include an input line reactor as standard.

* Current ratings are matched to NEC or typical motor ampere requirements.

※ Available only with 480V, 18 pulse drives.

‡ Available only with 480V, 6 pulse drives.

k

Control and I/O	
Code	I/O Volts
B	115V AC

l

Feedback	
Code	Type
0	None

m

Special Options	
Code	Type
NN	None

n

Special Options	
Code	Type
NN	None

o

Options	
Code	Description
-ND §	Normal
-HD §	Heavy
-B0 §	Bypass Not Required
-B1/B51 § ➤	Manual Bypass
-B2/B52 ➤	Auto Bypass
-C1 §	Drive Only Control Power
-C5 §	115V User Supplied Control Power
-E9	Nameplate, Door Mounted
-J1	Aux. Contacts, Control Power On
-J2	Aux. Contacts, Drive Fault
-J3	Aux. Contacts, Alarm
-J4	Aux. Contacts, Run
-J5	Aux. Contacts, At Speed
-J8/J58 ➤	Motor Heater Control, Remote Power (180W Max.)
-M3	Motor Run Meter, Drive/Bypass
-N1	Isolated Analog Input, 0-10V DC
-N2	Isolated Analog Input, 4-20 mA
-N3	Isolated Analog Output, 0-10V DC
-P1 §‡	No Input Protection
-P2 §	Input Fuses, Drive
-P3 §	Circuit Breaker, Drive
-P4 §	Circuit Breaker, Drive/Bypass Mode
-P6 §	Fused Disconnect Switch, Drive
-P7 §‡	Fused Disconnect Switch, Drive/Bypass Mode
-P8 *§	Disconnect Switch (Non-Fused), Drive/Bypass Mode
-P10 *	Fuse Block (No Fuses), Bypass Mode Only
-P11 ‡	Contactors, Drive Input
-P12 ‡	Contactors, Drive Output
-S1/S51 ➤	H/O/A S.S. (Start/Stop/Spd. Ref.)
-S9/S59 ➤	Run Pilot Light
-S10/S60 ➤	Drive Fault Pilot Light
-S11/S61 ➤	At Speed Pilot Light
-S12/S62 ➤	Drive Alarm Pilot Light
-S13/S63 ➤	Control Power On Pilot Light
-S14/S64 ➤	Drive & Bypass Mode Pilot Lights
-S15/S65 ➤	Bypass Mode & Auto Bypass En. P.L.
-S16/S66 ➤	Drive/Bypass (B1/B51, if present) Disable Mushroom P.B.
-S17/S67 ➤	Motor Fault Pilot Light
-S18/S68 ➤	Speed Potentiometer (1-Turn)

§ Must select either -ND or HD, Bypass option -B0 or B1/B51, Power Disconnecting Means option -P1, P2, P3, P4, P6, P7 or P8 and Control Power option -C1 or C5.

➤ Denotes 800F/800T device. When selecting multiple options, Do Not combine 800F and 800T devices (all devices must be the same type).

* Available only with 480V, 18 pulse drives.

‡ Available only with 480V, 6 pulse drives.

Additional Catalog Number Notes

Voltage Codes (Position 4/b)

- 18 Pulse Ratings – This option is available as voltage code U and provides a “Low Harmonic” input current draw to allow for compliance with IEEE-519 specifications. Available starting at 30 Hp and higher, this option uses a “Common Bus” DC input drive combined with 18 pulse phase shifting transformer and separate rectifier circuit. All 18 pulse packaged drives are built in MCC type enclosures as the standard offering.

Enclosure Types (Position 8/d)

- Packaged Drives are assembled in NEMA/UL Type 1, 4 or 12 enclosures. Each enclosure type lends itself to a particular type of protection and environment. The enclosures detailed below do not normally protect electrical equipment from condensation, corrosion or contamination which may occur within the enclosure or enter via the conduit or unsealed openings. Users must make adequate provisions to safeguard against such conditions, and satisfy themselves that the equipment is properly protected. For further information on criteria associated with NEMA enclosure ratings, refer to NEMA Standards Publication NO. 250-1991.
 - IP20 NEMA/UL Type 1 enclosures are intended for indoor use primarily to provide a degree of protection against contact with the enclosed equipment in locations where unusual service conditions do not exist. The enclosures are designed to meet the rod entry and rust resistance design tests. Openings in the enclosure door or sides and/or fans on the door(s) or sides allow for free exchange of inside and outside air.
A = NEMA/UL Type 1 (Enclosure style not specified)
B = NEMA/UL Type 1 MCC Style. Note - No through bus provided.
 - IP54 NEMA/UL Type 12 enclosures are intended for indoor use primarily to provide a degree of protection against dust, falling dirt and dripping non-corrosive liquids. They are designed to meet drip, dust and rust resistance tests. There may be ventilation openings on the enclosure to allow free exchange of inside and outside air. Closed loop auxiliary cooling may be required for higher Hp ratings. Specifications calling for NEMA-12 ventilated enclosures should be reviewed with the factory.
H = NEMA/UL Type 12 Ventilated - with fans if needed.
 - IP65 NEMA/UL Type 4 enclosures are intended for indoor or outdoor use primarily to provide a degree of protection against windblown dust and rain, splashing water, and hose directed water, and to be undamaged by the formation of ice on the enclosure. They are designed to meet hose-down, dust, external icing and rust resistance design tests. Doors and openings will be gasket sealed. There are no ventilation openings within the enclosure to allow for free exchange of inside and outside air. Closed loop auxiliary cooling may be required for higher Hp ratings.
D = NEMA/UL Type 4 Indoor use only.
E = NEMA/UL Type 4 Outdoor - Accommodations made for solar gain.
Note - HIM selection may be limited on NEMA/UL Type 4 enclosure designs.

Specifications

In most cases the general specifications of a packaged drive package will match those of a stand-alone drive. Refer to the Reference Materials section below for further information. Agency Certifications can be found on [page 14](#).

Maximum Short Circuit Drive Package - The short circuit interrupt capability of any drive package will be based upon the specific combination of the options chosen.

Duty Cycle

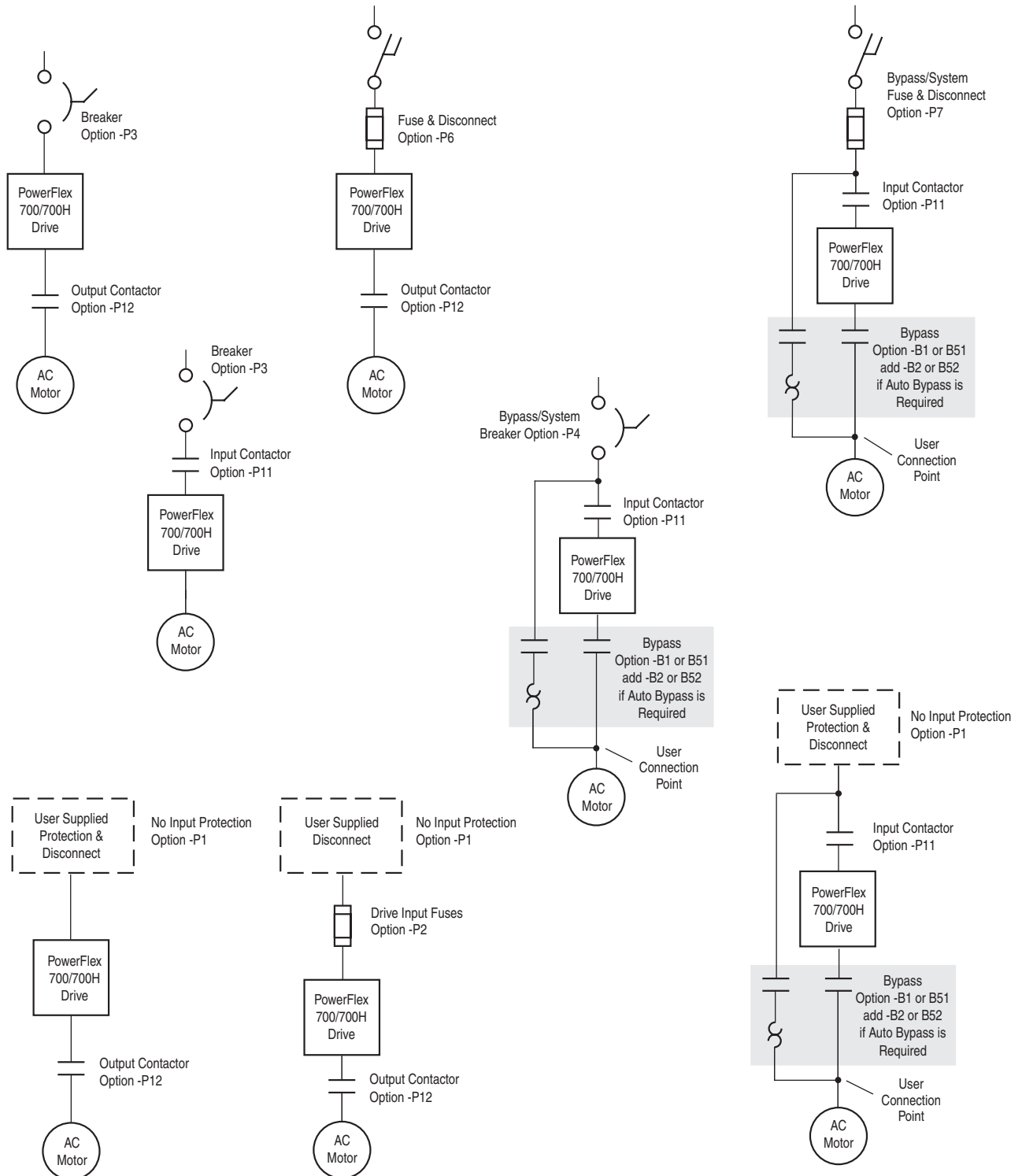
- ND = Normal Duty Rated.
 - 100% continuous current
 - 110% current for 1 minute
 - 150% for 3 seconds
- HD = Heavy Duty Rated.
 - 100% continuous current
 - 150% current for 1 minute
 - 200% for 3 seconds

Important: The Packaged Drive duty cycle rating is located on the drive “System” data nameplate. The standard drive is used as a component in the enclosure and may indicate ratings on its nameplate that differ from the “System” data nameplate. The packaged drive system rating may be limited by other components sized for NEC/typical motor ratings. In all cases the system nameplate data supersedes any component nameplate information. Unless otherwise stated, Normal Duty Rated packaged drives can not be used on Heavy Duty applications and Heavy Duty drives can not be used on Normal Duty Rated applications, regardless of the information on the standard drive component nameplate.

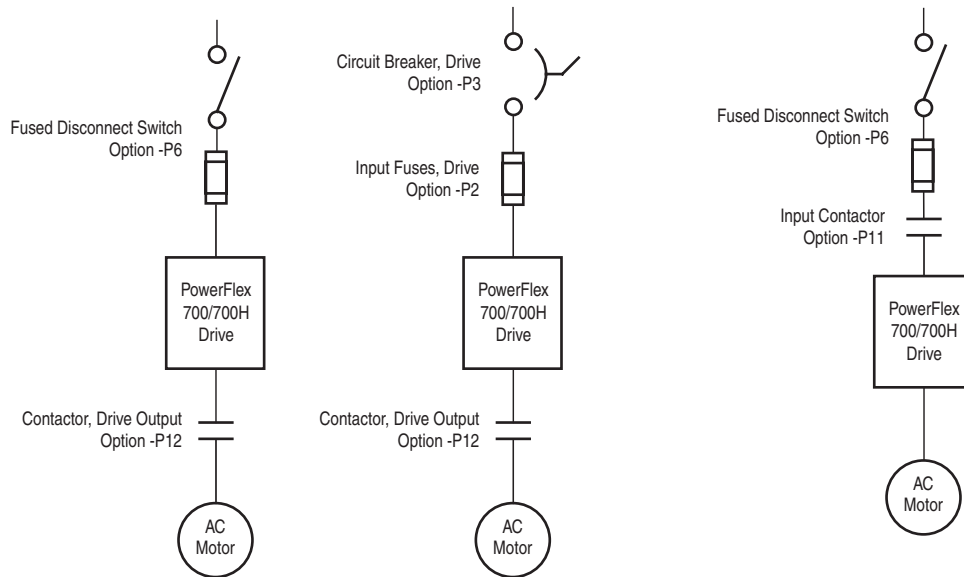
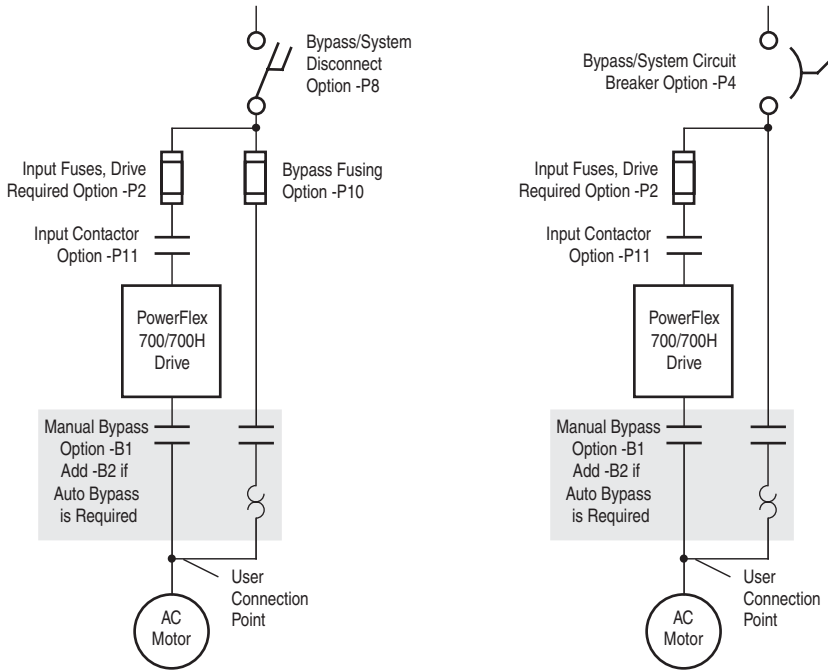
Options

Sample Power Distribution Schemes - 6 Pulse

The power distribution schemes shown below are for typical configurations and offered as suggestions only. Actual specified configurations may vary with accepted design practices or code restrictions.



Sample Power Distribution Schemes - 18 Pulse



Power Disconnect

Option	Description
P1	No Input Protection This option identifies that no drive input protection is supplied. Documentation to reflect input disconnection and protection is customer supplied.
P2	Drive Input Fuses Drive input fusing provides branch circuit protection when in the drive mode of operation.
P3	Drive Circuit Breaker This option is for disconnecting drive power only. Most ratings will use a motor circuit protector (MCP) type breaker. Where MCP's are not available, a thermal magnetic type breaker will be provided. All switches are through the door (with the exception of MCC style enclosures which use a flange style switch) and include handle operators, door interlocking and are pad-lockable.
P4	Drive/Bypass Mode Circuit Breaker This option is for disconnecting all input power to the cabinet (does not include remote power sources). Most ratings will use a motor circuit protector (MCP) type breaker. Where MCP's are not available, a thermal magnetic type breaker will be provided. All switches are through the door (with the exception of MCC style enclosures which use a flange style switch) and include handle operators, door interlocking and are pad lockable.
P6	Drive Disconnect Switch and Fuses This option is for disconnecting drive power only. A through the door (with the exception of MCC style enclosures which use a flange style switch) pad lockable disconnect switch with fuses is provided.
P7	Drive/Bypass Mode Fused Disconnect Switch This option is for disconnecting all input power to the cabinet (does not include remote power sources) and provides branch circuit protection. A through the door (with the exception of MCC style enclosures which use a flange style switch) pad lockable disconnect switch with fuses is provided
P8	Drive/Bypass Mode Non-Fused Disconnect Switch This option is for disconnecting all input power to the cabinet (does not include remote power sources). A through the door (with the exception of MCC style enclosures which use a flange style switch) pad lockable disconnect switch is provided
P10	Bypass Mode Motor Fuse Block This option provides a fuse block only. Fuses must be customer supplied and installed. This option is used in conjunction with the bypass option for motor branch circuit protection. Fuse block will accept class L dual element time delay fuse.
P11	Drive Input Contactor A contactor (where available) is provided between the AC line and the drive. The contactor will close on power up using A-B circuitry, or may be alternately controlled by customer supplied remote contact closure logic. Note: The P11 option "alternate contact circuit" is not intended to be used as a Start / Stop circuit.

Control Power

Option	Description
C1	Drive Only Control Power This option provides a fused (two primary and one secondary) control power transformer mounted and wired inside the drive enclosure. The transformer is rated for drive and options power only. There is no additional capacity for customer use.
C5	User Supplied Control Power This option will allow the user to supply 120 volt power to all control circuits. Note: User should determine if 120 volt power is needed by reviewing each option and the enclosure notes. If 120 volts are needed and C5 is selected, the user is responsible for providing 120 volt power. Conversely, if no 120 volt power is required and C1 is selected, a control transformer will be provided with the output wired to a terminal block for customer use.

Output Power

Option	Description
P12	Drive Output Contactor A contactor is provided between the drive output and the motor. The contactor will close on power up and open after a drive fault or loss of power. This option requires the J2 option.

Bypass

Option	Description
B0	No Bypass
B1 B51 ⁽¹⁾	Manual Bypass ⁽²⁾⁽³⁾ This option provides a means to manually switch a single motor from drive control to bypass (across the line) operation. Separate contactors are provided for drive output and bypass operation. An electronic or bimetallic motor overload is provided for motor protection while operating in the bypass mode. A door-mounted "Drive/Off/Bypass" selector switch is provided. "Drive Mode" and "Bypass Mode" pilot are available, and automatic bypass can also be added. See Door Mounted Operator Devices on page 13 .
B2 B52 ⁽¹⁾	Automatic Bypass ⁽²⁾⁽³⁾ This option provides a means to automatically (upon a drive fault) switch a single motor from drive control to bypass (across the line) operation. This option builds off any of the above options. "Auto Bypass Off/On" selector switch is provided. "Bypass Mode" and "Auto Bypass Enable On" pilot lights are available as option. See Door Mounted Operator Devices on page 13 .

⁽¹⁾ 800T device. When selecting multiple options, Do Not combine 800F and 800T devices (all devices must be the same type).

⁽²⁾ The Bypass Operation capability provided by this option is not intended for maintenance of the drive or entry into the enclosure with power applied while operating in the bypass mode.

⁽³⁾ Bypass Options do not include the required 120V AC control power. Control power may be supplied remotely by the user, or as part of the drive package by ordering a Control Power option – see Options section.

Enclosure

Option	Description
E9	Nameplate 6.25" x 2" door-mounted white lamacoid nameplate with black core for letters. The nameplate is shipped blank for customer engraving.

Power Conditioning

In general, the PowerFlex700 drive is suitable for direct connection to a correct voltage AC line that has a minimum impedance of 0.5% relative to the rated drive input kVA. If the line has lower impedance, a line reactor or isolation transformer must be added in front of the drive to increase line impedance. If the line impedance is too low, transient voltage spikes or interruptions can create excessive current spikes that may cause nuisance input fuse blowing and or damage to the drive power structure.

The basic rules for determining if a line reactor or isolation type transformer is required are as follows:

- If the AC input power system is not solidly grounded (i.e. high resistive ground or ungrounded) an isolation transformer with the neutral of the secondary grounded is highly recommended. If the line-to-ground voltages on any phase can exceed 125% of the nominal line-to-line voltage, an isolation transformer with the neutral of the secondary grounded, is always required.
- If the AC line supplying the drive has power factor correction capacitors that are switched in and out, an isolation transformer is recommended between the capacitors and drive. If the capacitors are permanently connected and not switched, the general rules for impedance mismatch above apply.
- If the AC line frequently experiences transient power interruptions or significant voltage spikes, an isolation transformer is recommended. Line reactors and isolation transformers can be ordered as loose items or installed in the drive enclosure.

Option	Description
L1	3% Input Line Reactor This option provides an open core drive input line reactor that mounts inside the drive enclosure. Typical impedance is 3%.
L2	3% Output Load Reactor This option provides an open core drive output load reactor, which mounts inside the drive enclosure. Typical impedance is 3%.

Control and Feedback - Auxiliary Contacts

Option	Description
J1	Control Power On Factory installed and provides two Form "C" contacts for Control Power On indication. These contacts close when control power is present for use by the drive system logic. The actual control power may be supplied with the drive, or user supplied.
J2 ⁽¹⁾	Drive Fault Factory installed and provides two Form "C" contacts for Drive Fault indication. The standard drive fault contact is used to power an auxiliary relay. This relay will energize when a fault occurs.
J3 ⁽¹⁾	Alarm Factory installed and provides two Form "C" contacts for Alarm indication. These contacts change state during drive alarm conditions. Drive alarm conditions are monitored conditions within the drive that exceed continuous operating specifications, but have not yet generated a drive fault. If the condition continues, a drive fault may occur. Drive alarm conditions are listed in the User Manual.
J4 ⁽¹⁾	Drive Run Factory installed and provides two Form "C" contacts for Drive Run indication. The standard drive run contact is used to power an auxiliary relay. This relay will energize when the drive is powered, a start command has been issued, and drive is running. The relay will deenergize when the drive stops or power is removed.
J5 ⁽¹⁾	At Speed Factory installed and provides two Form "C" contacts for At Speed indication. The standard drive programmable contact is used to power an auxiliary relay. This relay will energize when the commanded speed has been reached. The relay may be reprogrammed by the user for: At Frequency, At Current or At Torque indication or any other programmable function.
J8 J58 ⁽²⁾	Motor Heater Control, Remote Powered Provides the drive control circuitry for an existing motor heater. The heater is interlocked with the drive run relay and bypass (if present). It will be energized whenever the motor is not running. Option includes a white Motor Heater On pilot light mounted on the enclosure door. Customer is required to supply remote 120V AC power and heater has a 5 amp limit.
N1	Programmable Isolated Analog Input Provides an isolator for the analog input speed reference to the drive and is mounted and wired in the drive enclosure. The default (as shipped) setting will be to accept a remote 0...10V input.
N2	Programmable Isolated Analog Input Provides an isolator for the analog input speed reference to the drive and is mounted and wired in the drive enclosure. The default (as shipped) setting will be to accept a remote 4...20 mA input.
N3	Programmable Isolated Analog Output This option provides an isolator for the analog output from the drive and is mounted and wired in the drive enclosure. The default (as shipped) setting will be to provide a 0...10V output.
N5	Building Management Control Interface This option provides a control logic interface for a customer's building fire alarm panel. When a customer supplied "Fire Alarm Permissive" contact is opened, the motor will be shut down, regardless of whether it is in the drive or optional bypass mode. If the customer supplied "Smoke Purge" contact is closed in the drive mode, the motor will run at the adjustable preset speed set by the customer through drive programming. If the "Smoke Purge" contact is closed while running in the bypass mode, the motor will continue to run at base speed. If both functions are selected by the customer, then "Smoke Purge" will be in control. Neither will operate if any drive off function is engaged. A factory jumper may be removed to disable only the smoke purge interface.

(1) Important: The standard drive programmable contact is not available for customer use when this option is supplied.

(2) 800T device. When selecting multiple options, Do Not combine 800F and 800T devices (all devices must be the same type).

Door Mounted Operator Devices

Option	Description
S1 S51 ⁽²⁾	H/O/A S.S. (Start/Stop/Spd. Ref.) This door mounted operator device option is factory installed and provides a Hand/Off/Auto selector switch. This selector switch will start the drive in the Hand mode and stop it in the Off mode. In the Auto mode the drive will be stopped and started from remote contact closure. In all cases, the Stop/Fault Reset, Auxiliary and Enable inputs to the drive Control Interface Board must be present before the drive will start. If a drive connected HIM (human Interface Module) is also present, the HIM will stop the drive regardless of being in the Hand or Auto mode. If the H/O/A switch is in the Off position, the HIM will be non-functional (except for display and programming). If the H/O/A switch is in the Auto position with the remote start contact initiated, the HIM can still stop the drive. The Hand/Off/Auto selector switch also determines where the actual drive speed reference is coming from. Factory default setting will be Hand = HIM (unless a separate door mounted pot is specified) and Auto = remote input reference.

Option	Description
S9 S59 (2)	Drive Run Pilot Light ⁽¹⁾ The Run pilot light will be illuminated when the drive control board run relay outputs a run indication.
S10 S60 (2)	Drive Fault Pilot Light ⁽¹⁾ The Fault pilot light will be illuminated when the drive control board fault relay outputs a fault indication.
S11 S61 (2)	At Speed Pilot Light ⁽¹⁾ The At Speed pilot light provides at speed indication whenever the drive control board relay indicates that commanded speed equals actual speed.
S12 S62 (2)	Drive Alarm Pilot Light ⁽¹⁾ Pilot light will be illuminated when the drive control board alarm relay outputs an alarm indication.
S13 S63 (2)	Control Power On Pilot Light ⁽¹⁾ Pilot light will be illuminated whenever control power (internal or remotely supplied) is present for drive logic.
S14 S64 (2)	Drive & Bypass Mode Pilot Lights ⁽¹⁾ Amber lights are provided to indicate each operating mode.
S15 S65 (2)	Bypass Mode & Auto Bypass En. P.L. ⁽¹⁾ Amber lights are provided to indicate each operating mode.
S16 S66 (2)	Drive & Bypass Disable Mushroom P.B. This push button option is a push-pull unit that when pushed, will open the drive enable input, or bypass contactor, disable the drive output and open the drive output contactor (if present).
S17 S67 (2)	Motor Fault Pilot Light ⁽¹⁾ The Motor Fault pilot light will be illuminated whenever the thermal overload relay OL1 trips on an overload.
S18 S68 (2)	Analog Potentiometer Generally used for local speed reference, this option provides a speed potentiometer wired to the drive analog input.

(1) Pilot light is incandescent.

(2) 800T device. When selecting multiple options, Do Not combine 800F and 800T devices (all devices must be the same type).

Output Metering

Option	Description
M3	Drive/Bypass-Motor Run Time Meter This option provides a digital, non-re-settable, door-mounted elapsed time meter. The meter is electrically interlocked with the Drive Run relay and Bypass contactor (if supplied) to indicate actual motor operating hours. (Note: The standard internal drive elapsed time meter requires a HIM for viewing and is not operable in the bypass mode.)

Codes and Standards

Option	Description
CE (European Conference Standard)	Consult the factory with requirements to meet the separate Low Voltage and/or EMC directives. In most cases packaged drives qualify for "Restricted Industrial" applications and will only require meeting the Low Voltage directive.
UL, C-UL (CSA)	Based on UL508

Electronic Drawings

Description
Manufacturing Drawings 279 x 432 mm (11 x 17 in.) One set of schematics - "Information Only - Manufacture Proceeding" Not to be used as Approval Drawings, available after order is released from engineering. 1301-MFDWG-E Electronic Drawings (Requires E-mail Address)
Final Drawings (as shipped) 279 x 432 mm (11 x 17 in.) One set of schematics - "Copy of Drawings that Shipped with the Job" 1301-FINDWG-E Electronic Drawings (Requires E-mail Address)
Approval Drawings Standard Packaged Drives are pre-engineered and all variations have drawings available. Thus, Approval Drawings (1301-APPDWG-E) are not a valid option for use with Standard Packaged Drives. However, a sample copy of the drawings for any valid catalog string may be obtained by contacting Matt Kuenzi at: mrkuenzi@ra.rockwell.com. Provide the product catalog number that you would like drawings for, your name, phone number, e-mail address, approximate quantities and delivery requirements (if available) that are required. Also include any general concerns that the end user may have. These sample drawings are not to be used as approval drawings.

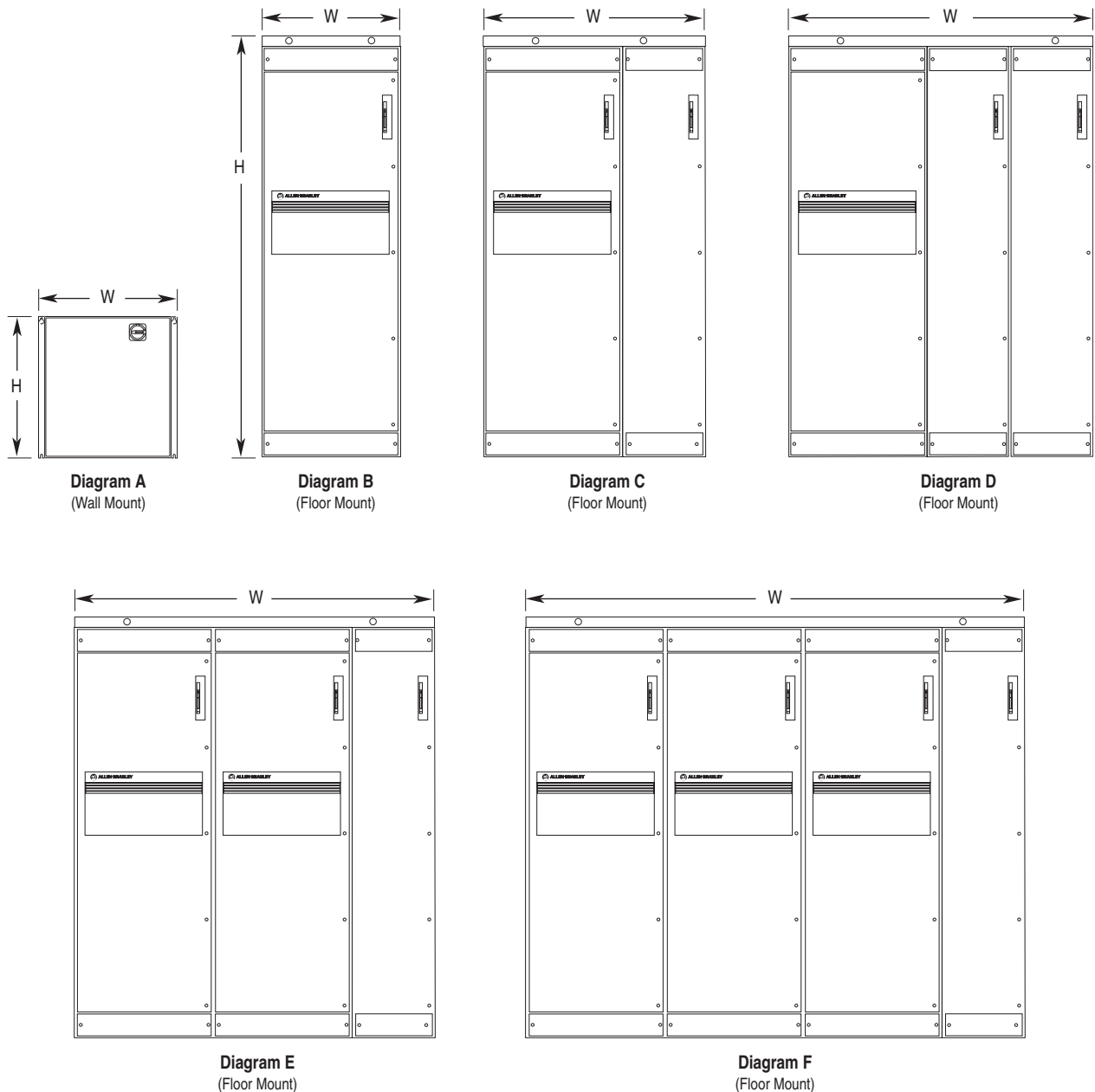
Enclosure Information

Guidelines

The information in this document may be useful in making some pre-installation decisions. Consideration should be given to enclosure type (environment), enclosure size (mounting area available and mounting convention), panel layouts (customer wiring connection locations and extra customer mounting area), terminal block descriptions and catalog number definition.

Dimensions

Enclosures are shown without venting. Supplied enclosures will have proper venting.



480V, 6 Pulse Drive with Fuses, Disconnect and Input Line Reactor – MCC Style (No Through Bus), Rittal or Wall Mount

Description		Normal Duty Ratings			Heavy Duty Ratings			Dimensions					
Drive	Frame	Protection Class Rating	Max. Output Current	Ambient Temp.	Max. Output Current	Ambient Temp.	H x W x D ⁽¹⁾	Ventilation Requirement (additional width required)	Layout see page 15	Dimension Drawing see ...	Approx. Weight kg (lbs)		
		NEMA/UL										Hp	Deg. C
700	0	1	0.5...7.5	11	40	0.5...5	11	40	965 x 610 x 422 ⁽²⁾ (38.0 x 24.0 x 16.6)	101.6 (4.0)	Diagram A	page 19	50 (110)
		12	0.5...7.5	11	40	0.5...5	11	40	965 x 610 x 422 ⁽²⁾ (38.0 x 24.0 x 16.6)	127.0 (5.0)	Diagram A	page 20	50 (110)
	1	1	10...15	22	40	7.5...10	22	40	965 x 610 x 422 ⁽²⁾ (38.0 x 24.0 x 16.6)	101.6 (4.0)	Diagram A	page 21	75 (165)
		12	10...15	22	40	7.5...10	22	40	1118 x 610 x 523 ⁽²⁾ (44.0 x 24.0 x 20.6)	127.0 (5.0)	Diagram A	page 22	75 (165)
	2	1	20...25	27	40	15...20	27	40	965 x 610 x 422 ⁽²⁾ (38.0 x 24.0 x 16.6)	101.6 (4.0)	Diagram A	page 23	111 (245)
		12	20...25	27	40	15...20	27	40	1118 x 610 x 523 ⁽²⁾ (44.0 x 24.0 x 20.6)	127.0 (5.0)	Diagram A	page 24	111 (245)
	3	1 - no Line Reactor	30...50	52	40	25...40	52	40	1016 x 762 x 422 (40.0 x 30.0 x 16.6)	None	Diagram A	page 25	170 (375)
		1 - with Line Reactor	30...50	52	40	25...40	52	40	1270 x 762 x 422 (50.0 x 30.0 x 16.6)	101.6 (4.0)	Diagram A	page 26	170 (375)
		12	30...50	52	40	25...40	52	40	1270 x 762 x 523 ⁽²⁾ (50.0 x 30.0 x 20.6)	127.0 (5.0)	Diagram A	page 27	170 (375)
	4	1 - no Line Reactor	60	77	40	40	65	40	1270 x 762 x 422 (50.0 x 30.0 x 16.6)	None	Diagram B	page 28	250 (550)
		1 - with Line Reactor	60	77	40	40	65	40	1422 x 914 x 422 (56.0 x 36.0 x 16.6)	203.2 (8.0)	Diagram B	page 29	250 (550)
		12	60	77	40	40	65	40	1422 x 914 x 611 ⁽²⁾ (56.0 x 36.0 x 24.1)	127.0 (5.0)	Diagram B	page 30	250 (550)
5	1 or 12	60...100	124	40	60...75	96	40	2200 x 800 x 600 ⁽²⁾ (86.6 x 31.5 x 23.6)	127.0 (5.0)	Diagram B	page 31	306 (675)	
6	1 or 12	125...200	240	40 ⁽³⁾	100...150	180	40	2200 x 1000 x 600 ⁽²⁾ (86.6 x 39.5 x 23.6)	127.0 (5.0)	Diagram B	page 32	386 (850)	
700H ⁽⁴⁾	10	1 - no Bypass	300...350	414	40	200	361	40	2324 x 1143 x 635 (91.5 x 45 x 25)	None	Diagram C	page 33	544 (1200)
		1 - with Bypass	300...350	414	40	200	361	40	2324 x 1270 x 635 (91.5 x 50 x 25)	None	Diagram C	page 34	612 (1350)
		1 - no Bypass	400...450	500	40	300	414	40	2324 x 1143 x 635 (91.5 x 45 x 25)	None	Diagram C	page 35	544 (1200)
		1 - with Bypass	400...450	500	40	300	414	40	2324 x 1397 x 635 (91.5 x 55 x 25)	None	Diagram C	page 36	612 (1350)
	11	1 - no Bypass	500...600	708	40	400...500	590	40	2324 x 1524 x 635 (91.5 x 60 x 25)	None	Diagram C	page 37	726 (1600)
		1 - with Bypass	500...600	708	40	400...500	590	40	2324 x 2159 x 635 (91.5 x 85 x 25)	None	Diagram D	page 38	816 (1800)
	12	1 - no Bypass	700...900	1030	40	600...800	920	40	2324 x 1905 x 635 (91.5 x 75 x 25)	None	Diagram D	page 39	998 (2200)

(1) Dimensions do not include depth of the disconnect or door mount devices. Refer to Dimension Drawing for details.

(2) Dimensions are the same with or without line reactors.

(3) 21BD248 is 35 degrees C.

(4) Input line reactor is standard on PowerFlex 700H.

480V, 18 Pulse Drive with Fuses and Disconnect – MCC Style (No Through Bus)

Description		Normal Duty Ratings			Heavy Duty Ratings			Dimensions					
Drive	Frame	Protection Class <i>NEMA/UL</i>	Hp	Max. Output Current	Ambient Temp.	Hp	Max. Output Current	Ambient Temp.	H x W x D ⁽¹⁾ <i>mm (in.)</i>	Ventilation Requirement <i>(additional width required)</i>	Layout <i>See page 15</i>	Dimension <i>Drawing</i>	Approx. Weight <i>kg (lbs)</i>
				<i>Amps</i>	<i>Deg. C</i>		<i>Amps</i>	<i>Deg. C</i>					
700	3	1	40...50	65	40	30...40	52	40	2324 x 635 x 635 (91.5 x 25 x 25)	None	Diagram B	page 40	612 (1350)
	4	1	60	77	40	50	65	40	2324 x 762 x 635 (91.5 x 30 x 25)	None	Diagram B	page 41	658 (1450)
	5	1 - no Bypass	75...100	124	40	60...75	96	40	2324 x 889 x 635 (91.5 x 35 x 25)	None	Diagram B	page 42	816 (1800)
		1 - with Bypass	75...100	124	40	60...75	96	40	2324 x 1397 x 635 (91.5 x 55 x 25)	None	Diagram C	page 43	1043 (2300)
	6	1 - no Bypass	125...200	240	40 ⁽²⁾	100...150	180	40	2324 x 889 x 635 (91.5 x 35 x 25)	None	Diagram B	page 42	1043 (2300)
		1 - with Bypass	125...200	240	40 ⁽²⁾	100...150	180	40	2324 x 1397 x 635 (91.5 x 55 x 25)	None	Diagram C	page 43	1225 (2700)
700H	9	1 - no Bypass	200...250	300	30	150...200	240	40	2565 x 1651 x 635 (101 x 65 x 25) ⁽³⁾	None	Diagram C	page 44	1225 (2700)
		1 - with Bypass	200...250	300	30	150...200	240	40	2565 x 2159 x 635 (101 x 85 x 25) ⁽³⁾	None	Diagram D	page 45	1406 (3100)
	10	1 - no Bypass	300...450	500	40	250...350	414	40	2565 x 1524 x 635 (101 x 60 x 25) ⁽³⁾	None	Diagram C	page 46	1451 (3200)
		1 - with Bypass	300...450	500	40	250...350	414	40	2565 x 2286 x 635 (101 x 90 x 25) ⁽³⁾	None	Diagram D	page 47	1724 (3800)
	11	1 - no Bypass	500...600	708	40	400...500	650	40	2565 x 2286 x 635 (101 x 90 x 25) ⁽³⁾	None	Diagram D	page 48	2177 (4800)
		1 - with Bypass	500...600	708	40	400...500	650	40	2565 x 3175 x 635 (101 x 125 x 25) ⁽³⁾	None	Diagram E	page 49	2404 (5300)

(1) Dimensions do not include depth of the disconnect or door mount devices. Refer to Dimension Drawing for details.

(2) 21BD248 is 35 degrees C.

(3) 330 mm (30 in.) pull box vent with fans - removable for shipping.

Approximate Watts Loss

Hp Rating	6 Pulse Only	with 3% input or Output Reactor	with 3% input and Output Reactors	18 Pulse with Auto Transformer
1	15	17	19	NA
2	30	34	39	NA
3	45	51	58	NA
5	75	86	97	NA
7.5	112	129	145	NA
10	149	172	194	NA
15	224	257	291	NA
20	298	343	388	665
25	373	429	485	840
30	448	515	582	987
40	597	686	776	1285
50	746	858	970	1603
60	895	1029	1164	1946
75	1119	1287	1455	2426
100	1492	1716	1940	3133
125	1865	2145	2425	3941
150	2238	2574	2909	4547
200	2984	3432	3879	6062
250	3730	4290	4849	7630
300	4476	5147	5819	9328
350	5222	6005	6789	10700
400	5968	6863	7758	12327
450	6714	7721	8728	13311
500	7460	8579	9698	15426
600	8952	10295	11638	18298
700	10444	12011	13577	21319
800	11936	13726	15517	24420

Dimension Drawings - 6 Pulse

Figure 1. PowerFlex 700 6 Pulse, Frame 0, NEMA/UL Type 1

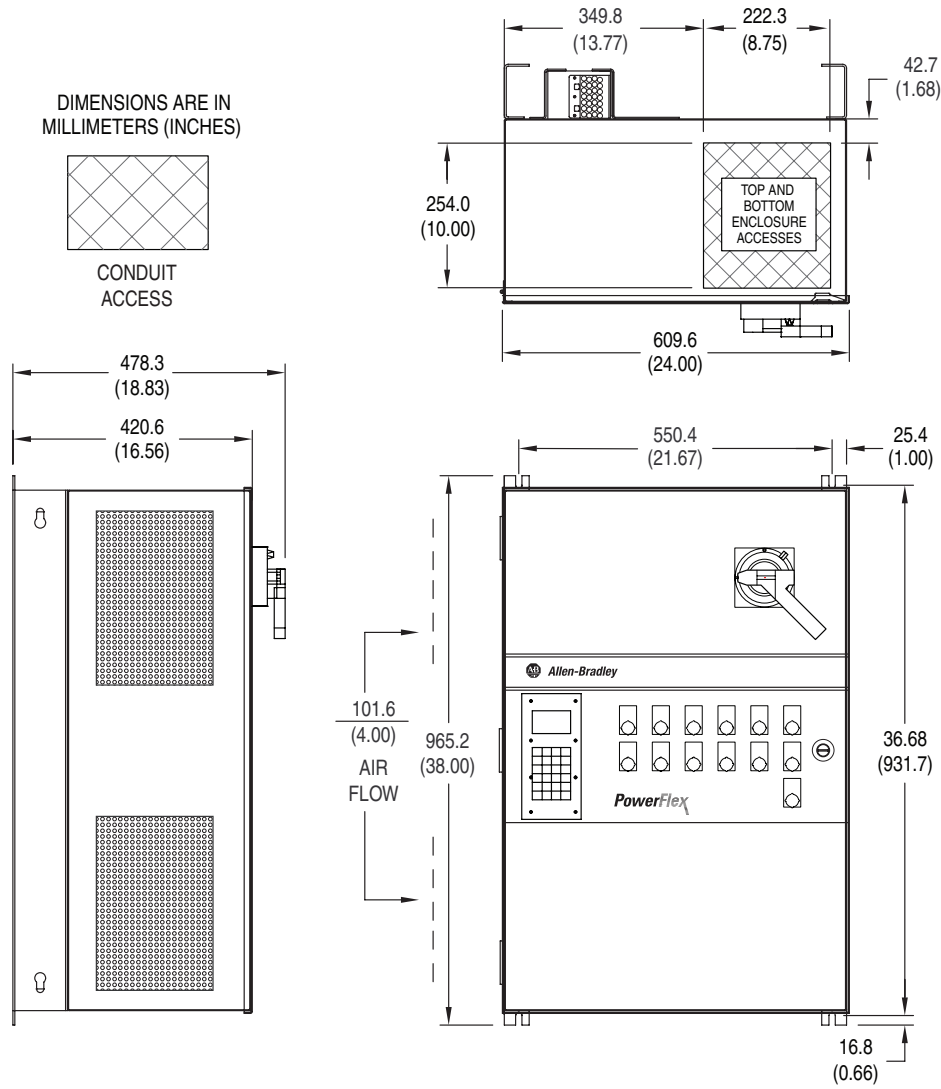


Figure 2. PowerFlex 700 6 Pulse, Frame 0, NEMA/UL Type 12

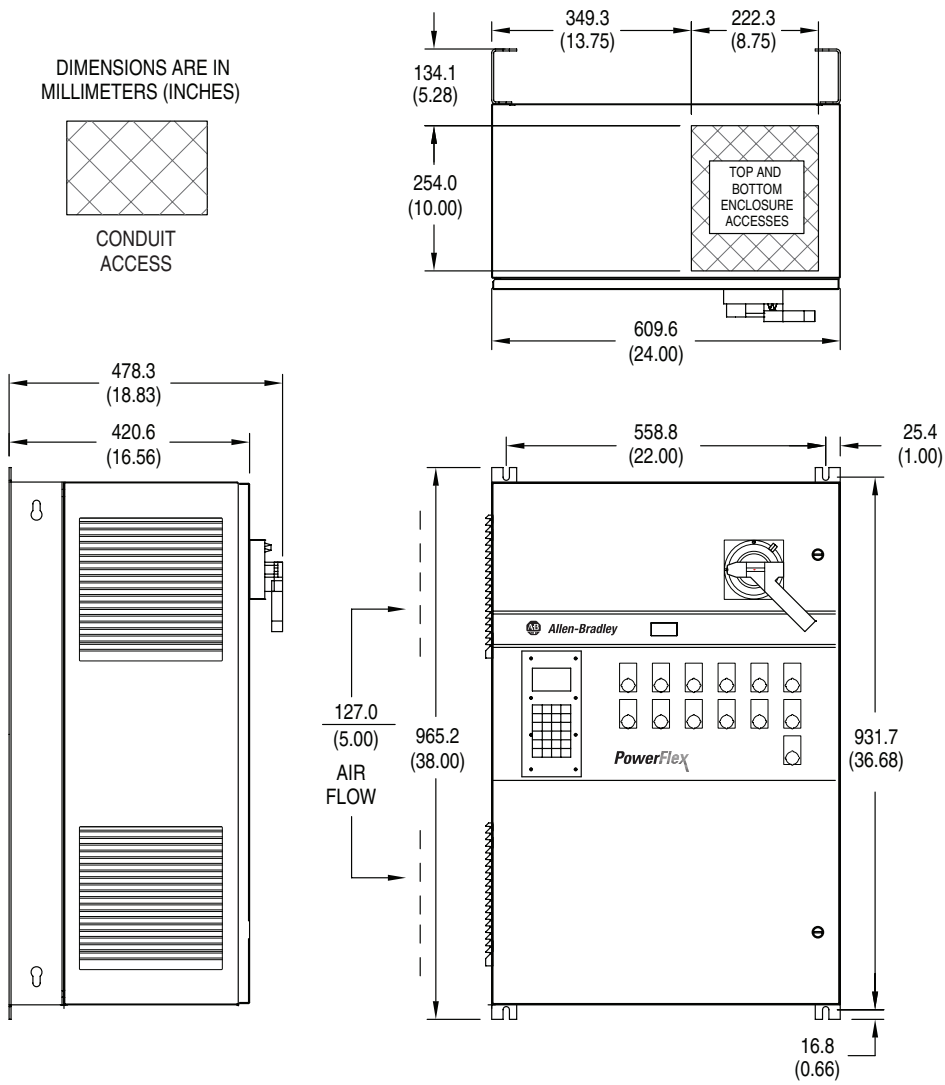


Figure 3. PowerFlex 700 6 Pulse, Frame 1, NEMA/UL Type 1

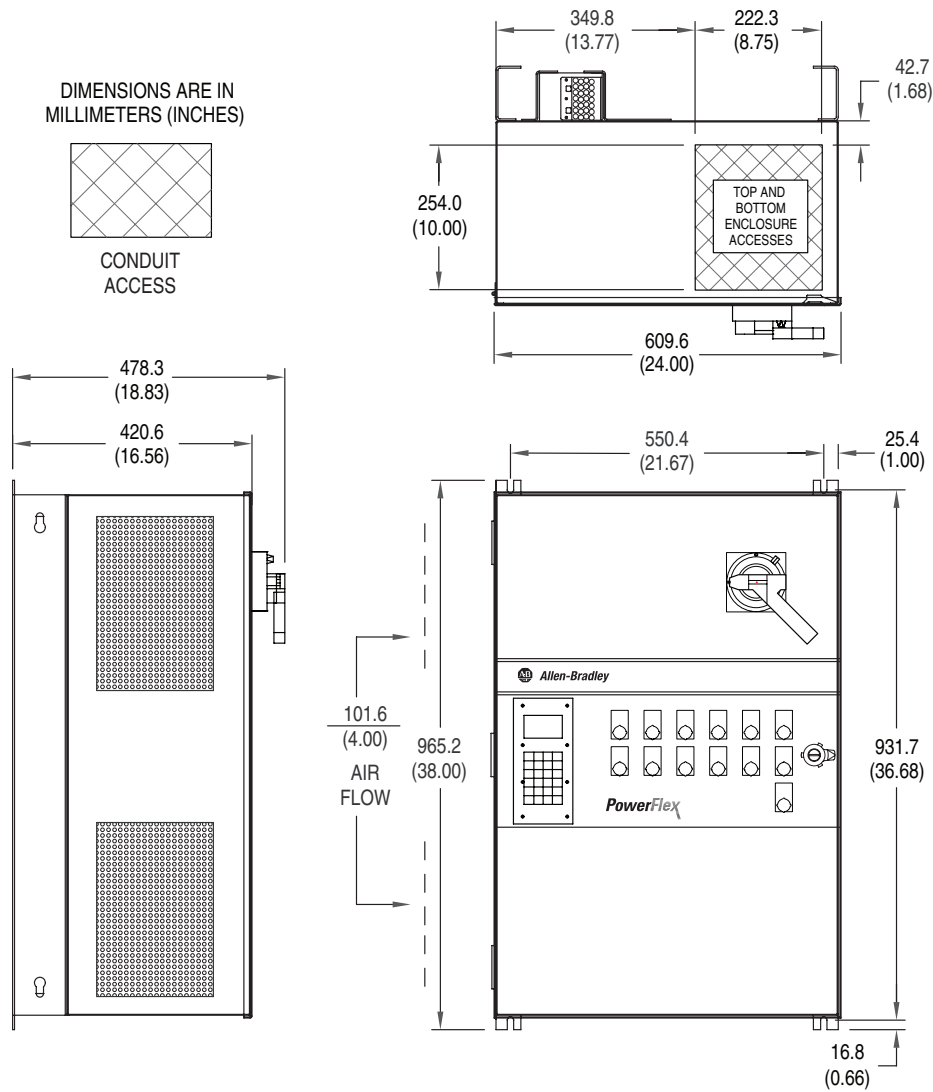


Figure 4. PowerFlex 700 6 Pulse, Frame 1, NEMA/UL Type 12

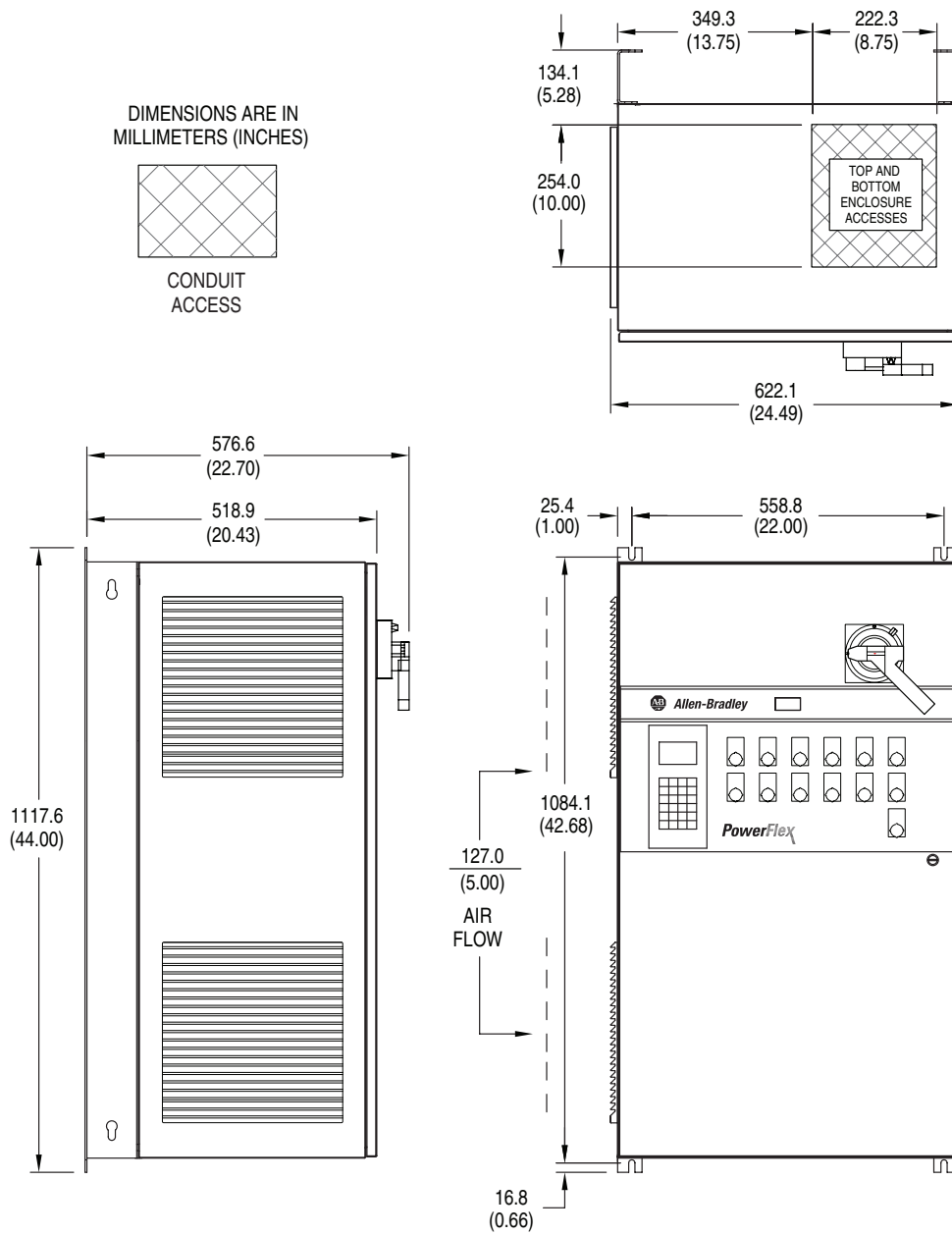


Figure 5. PowerFlex 700 6 Pulse, Frame 2, NEMA/UL Type 1

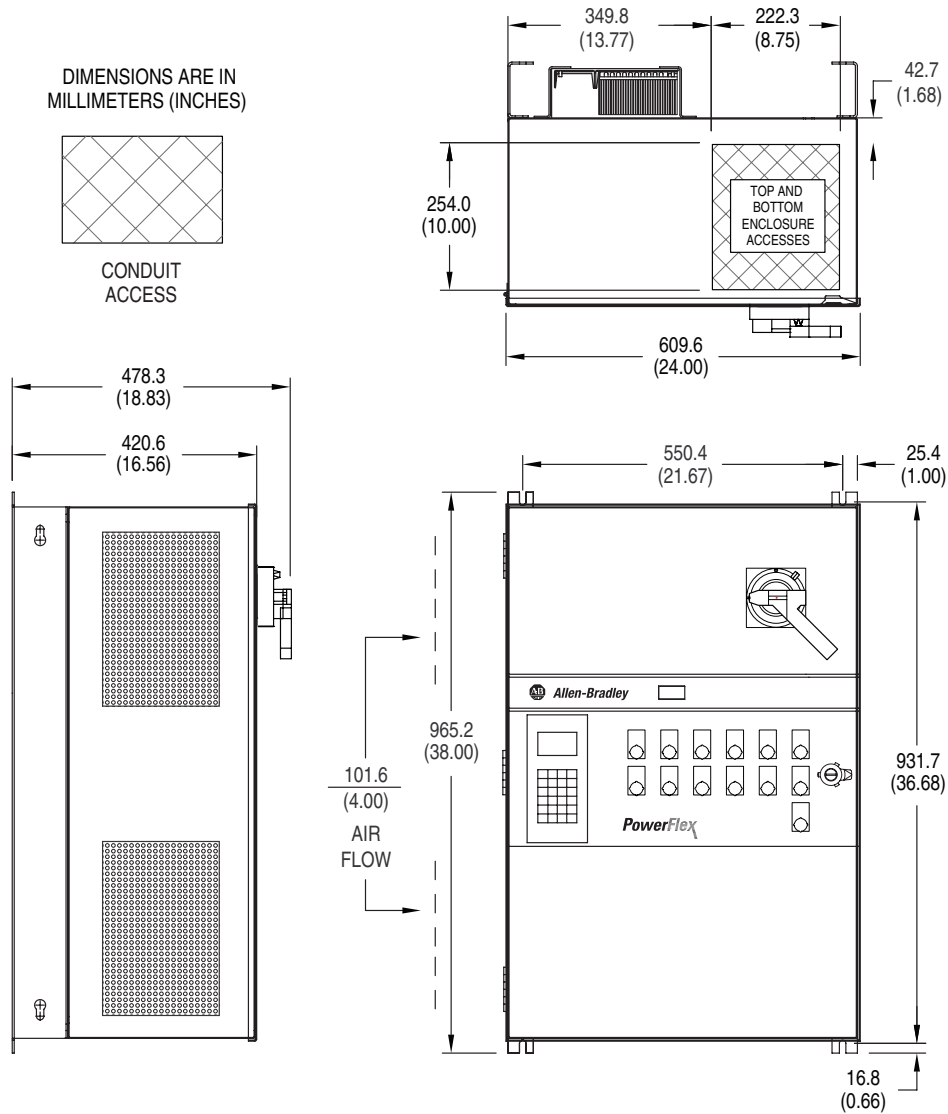


Figure 6. PowerFlex 700 6 Pulse, Frame 2, NEMA/UL Type 12

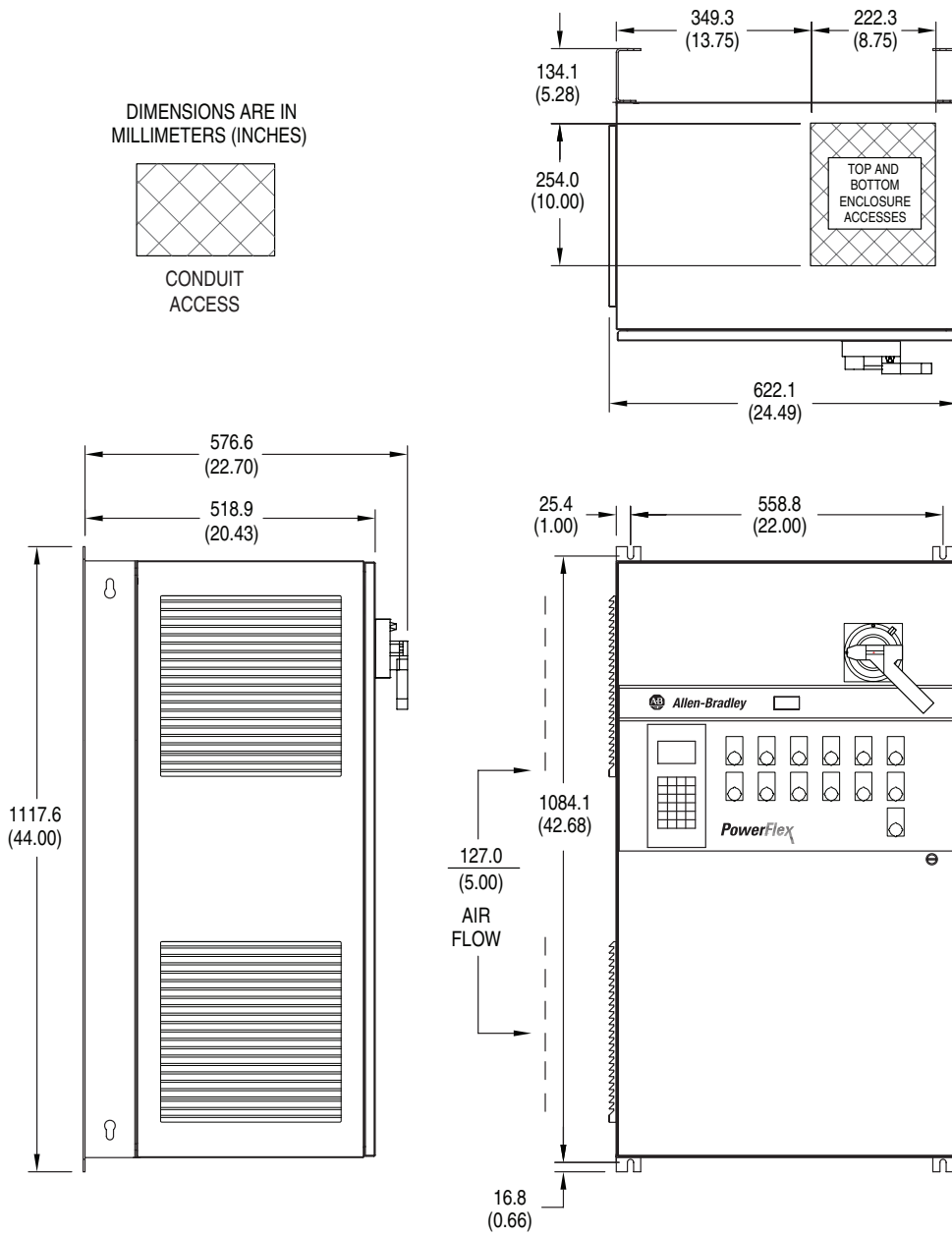


Figure 7. PowerFlex 700 6 Pulse, Frame 3, NEMA/UL Type 1 - No Line Reactor

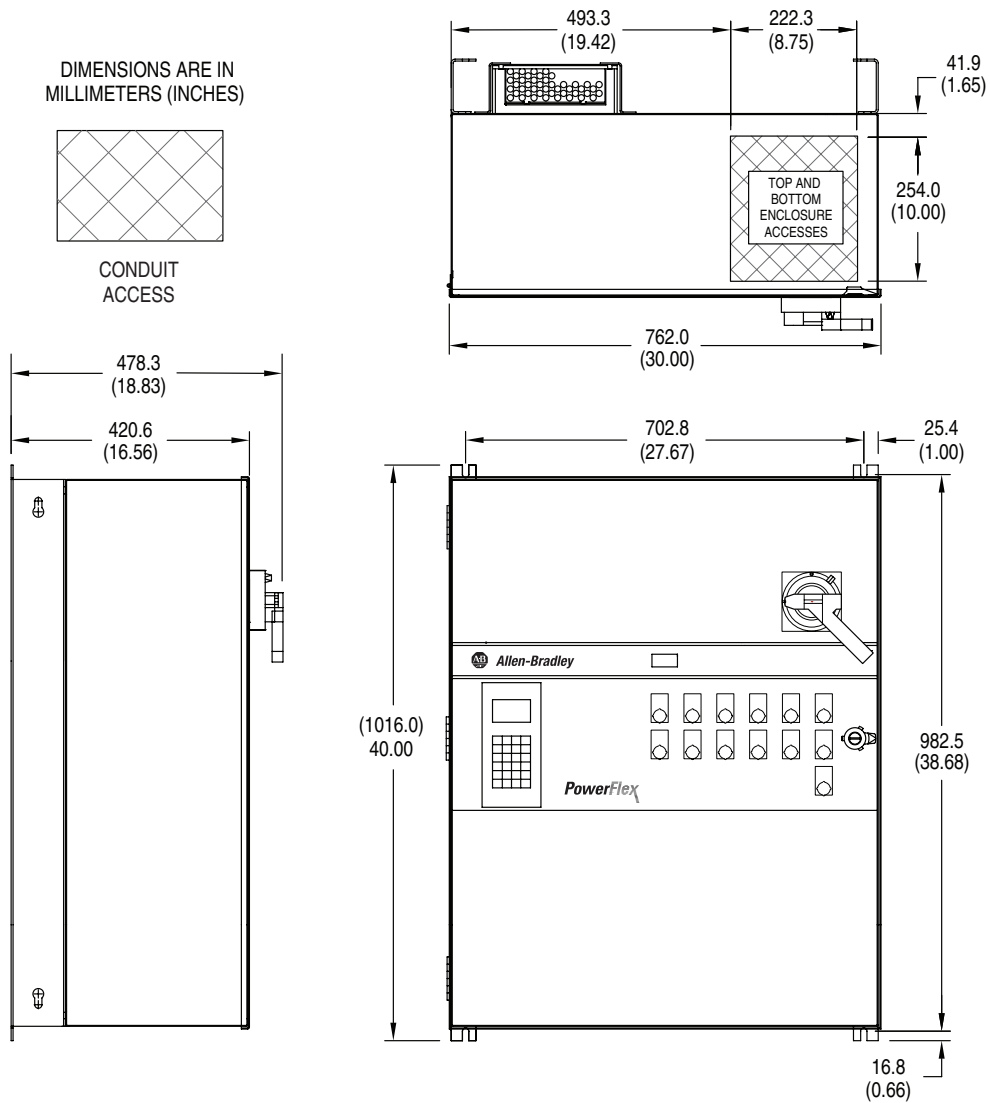


Figure 8. PowerFlex 700 6 Pulse, Frame 3, NEMA/UL Type 1 with Line Reactor

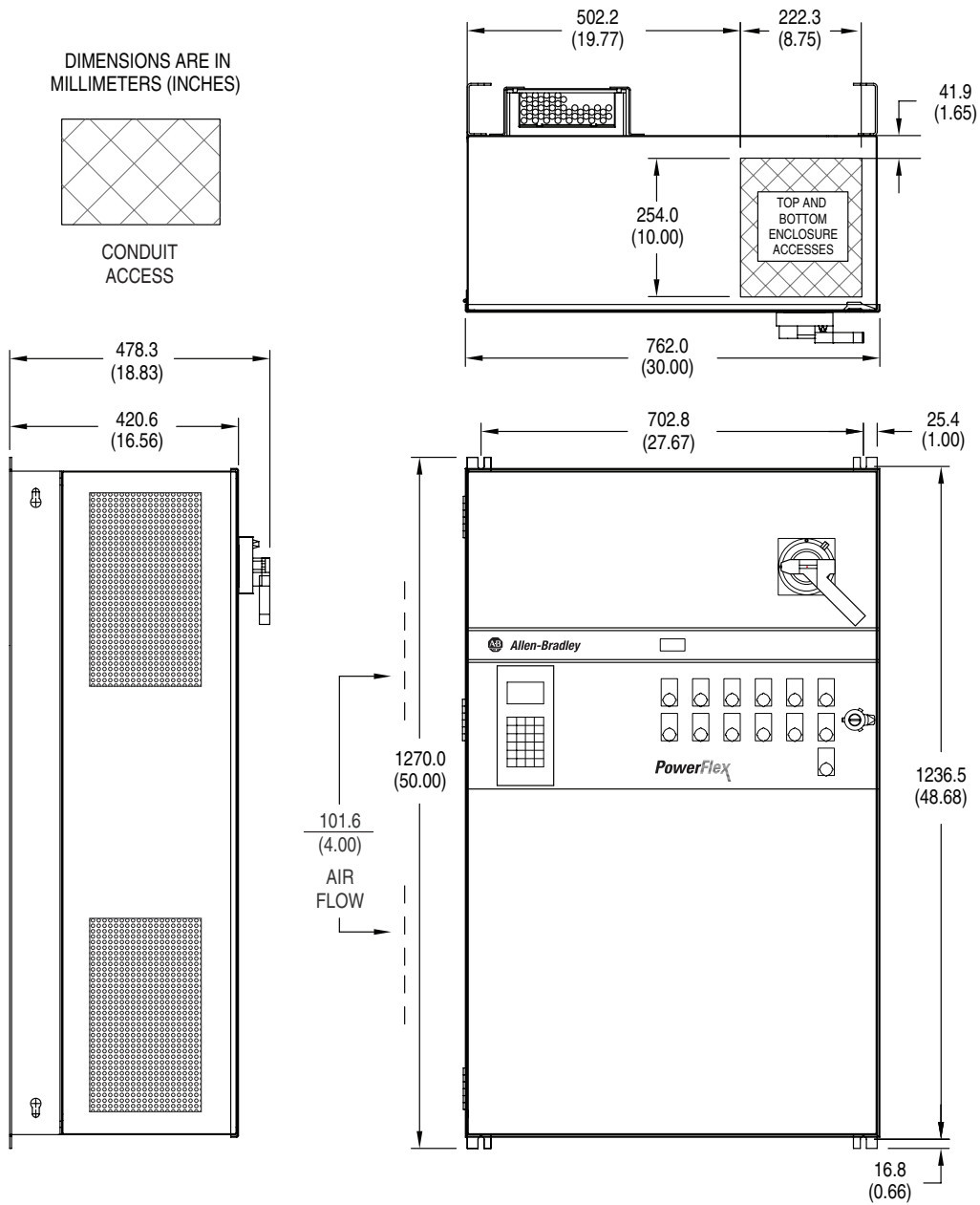


Figure 9. PowerFlex 700 6 Pulse, Frame 3, NEMA/UL Type 12

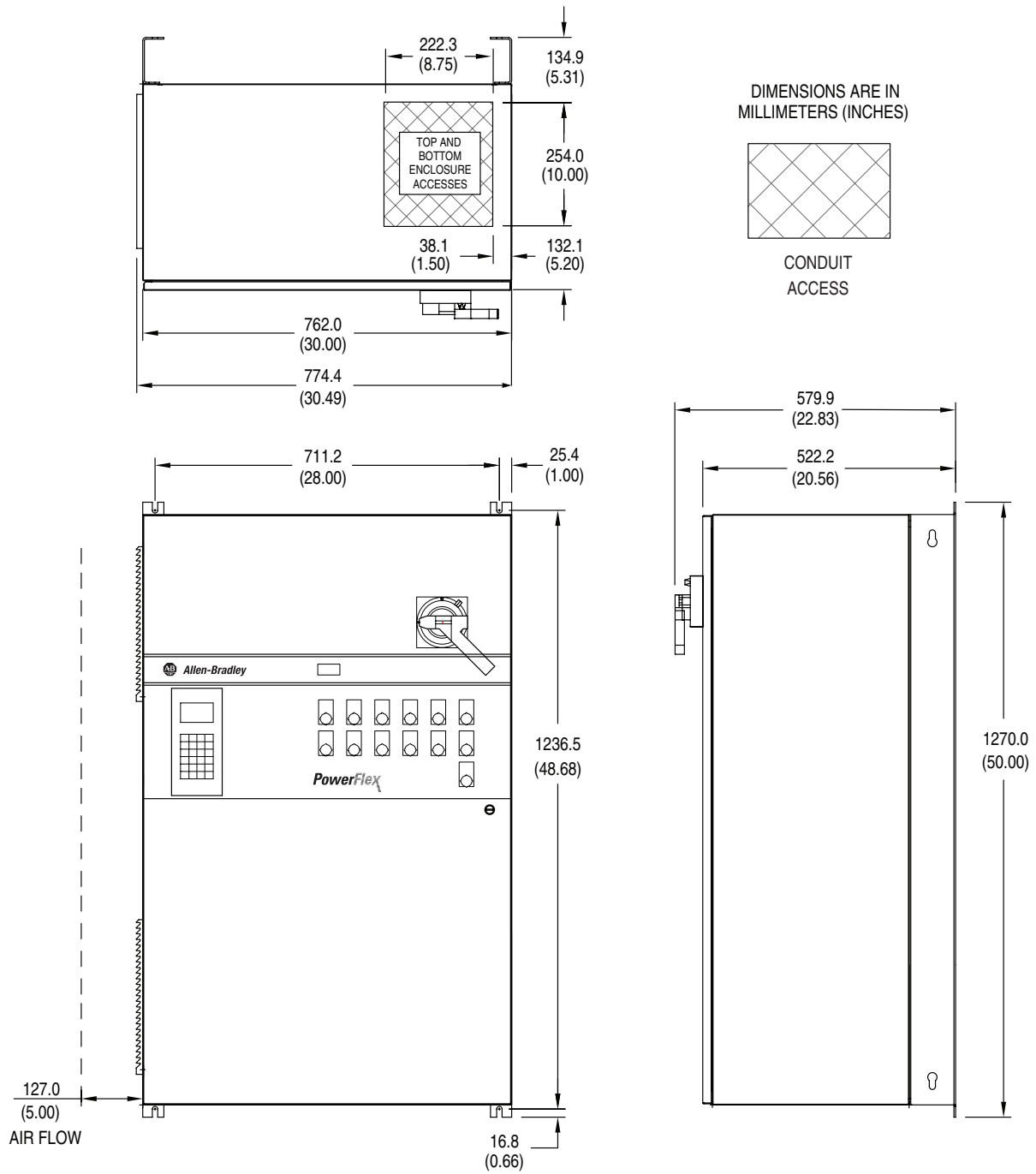


Figure 10. PowerFlex 700 6 Pulse, Frame 4, NEMA/UL Type 1 - No Line Reactor

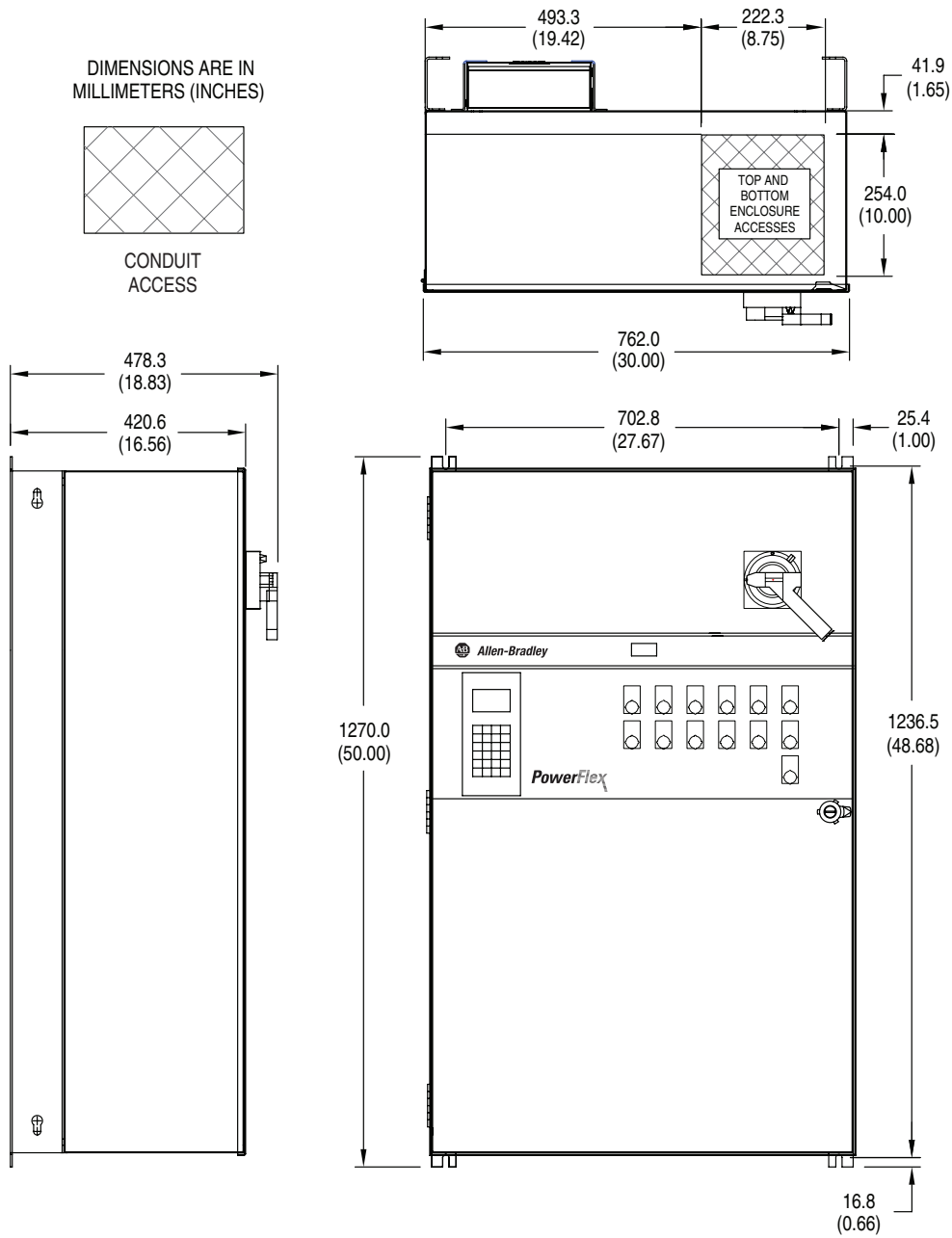


Figure 11. PowerFlex 700 6 Pulse, Frame 4, NEMA/UL Type 1 with Line Reactor

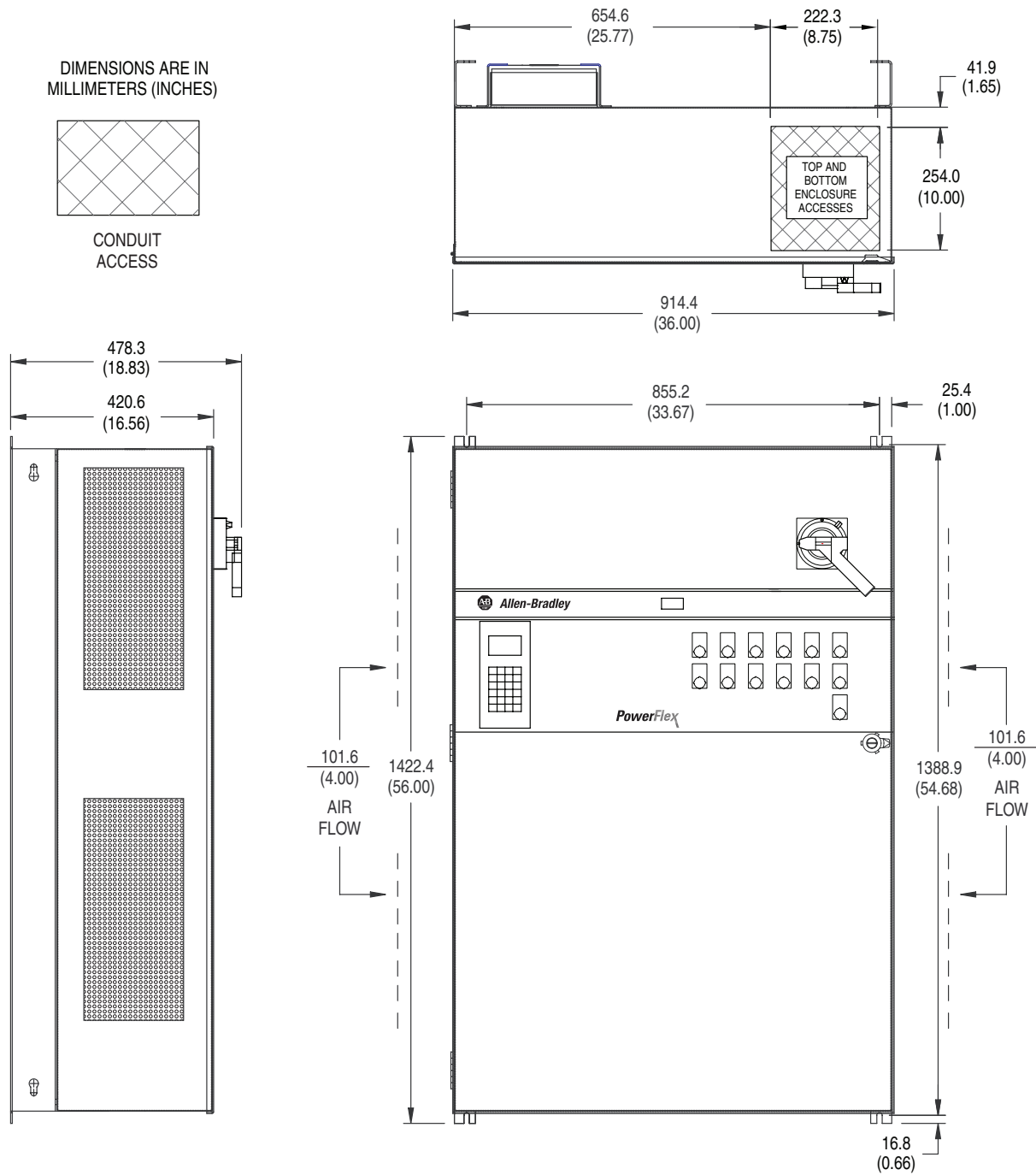


Figure 12. PowerFlex 700 6 Pulse, Frame 4, NEMA/UL Type 12

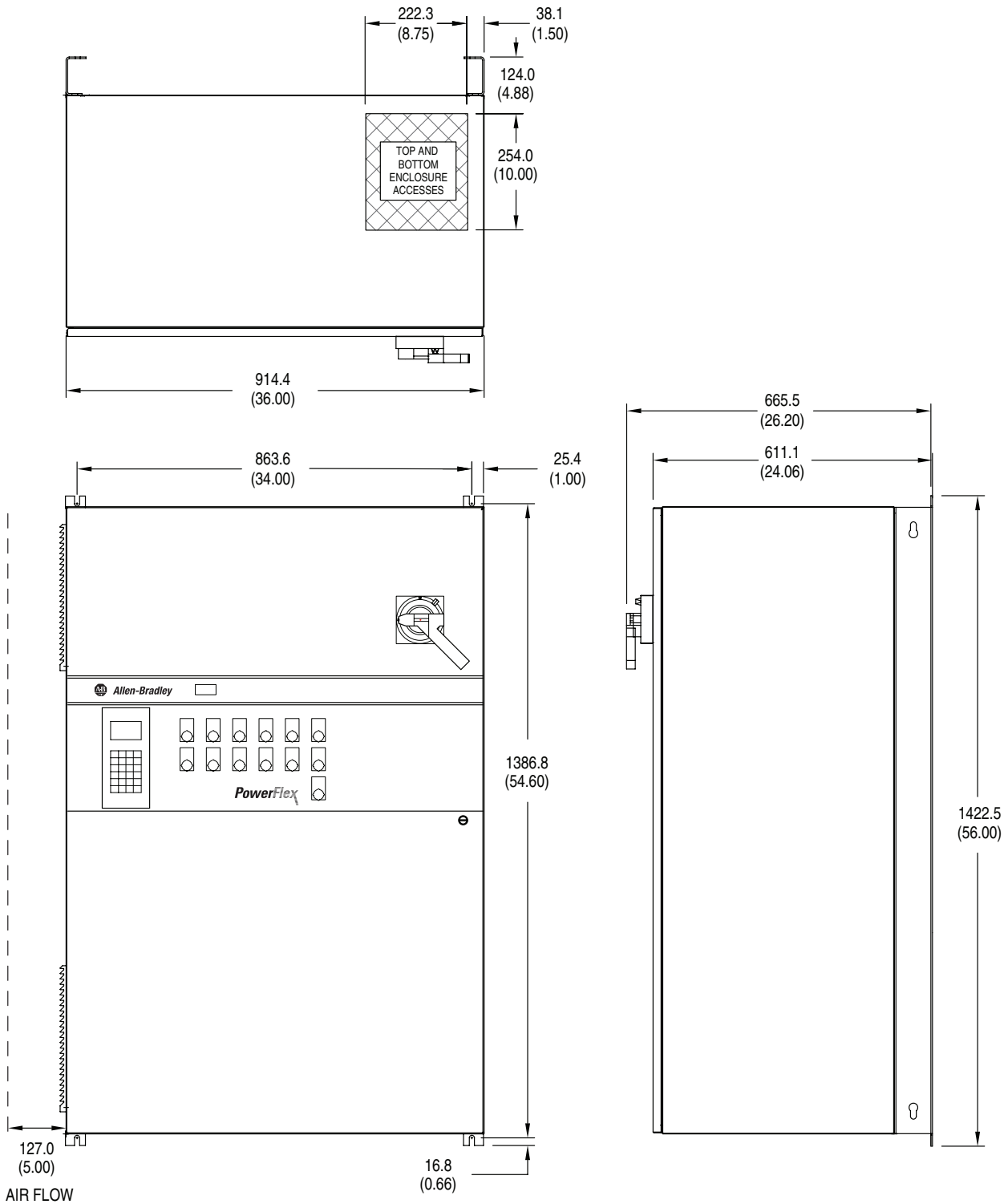


Figure 13. PowerFlex 700 6 Pulse, Frame 5, NEMA/UL Type 1 or 12

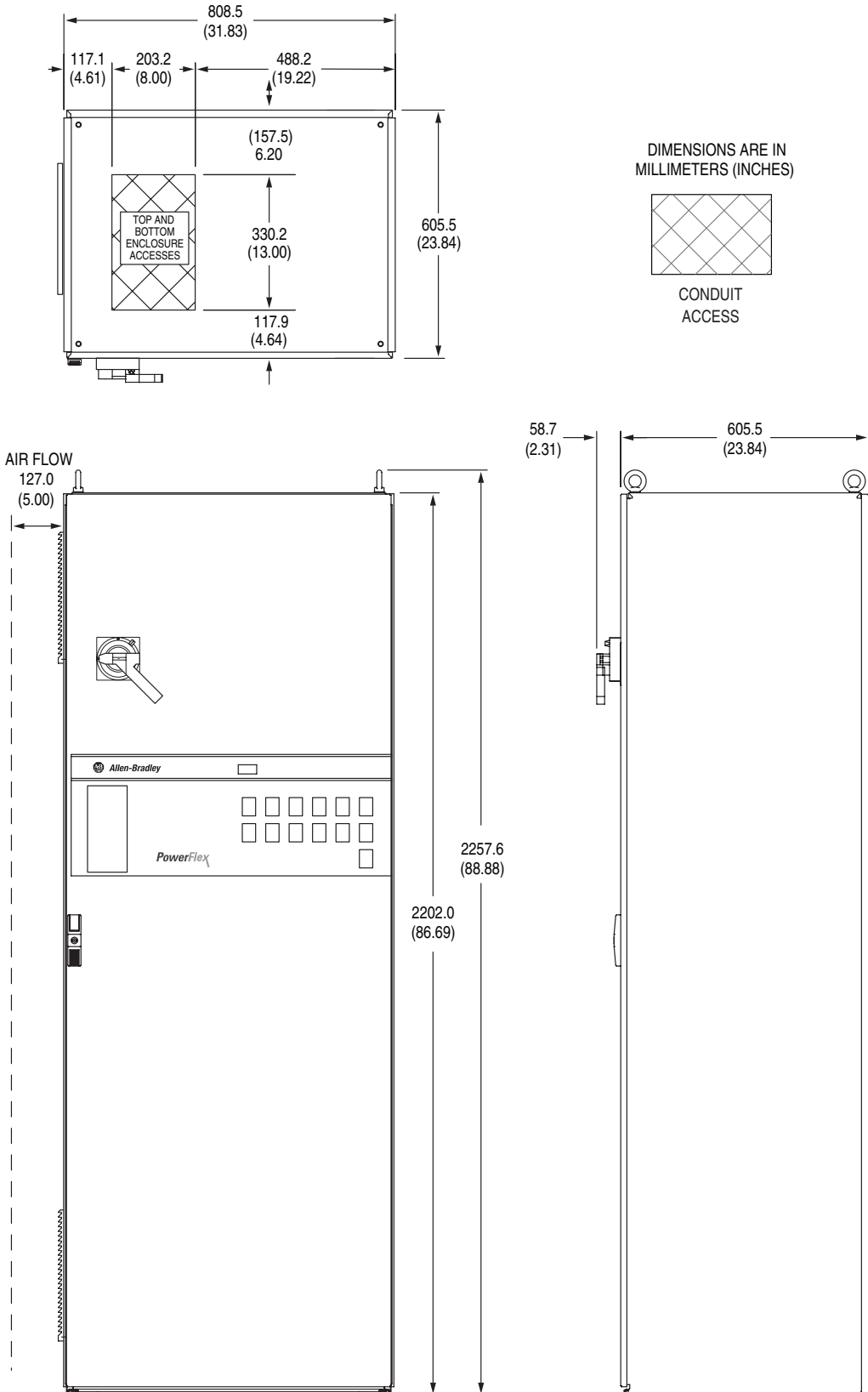


Figure 14. PowerFlex 700 6 Pulse, Frame 6, NEMA/UL Type 1 or 12

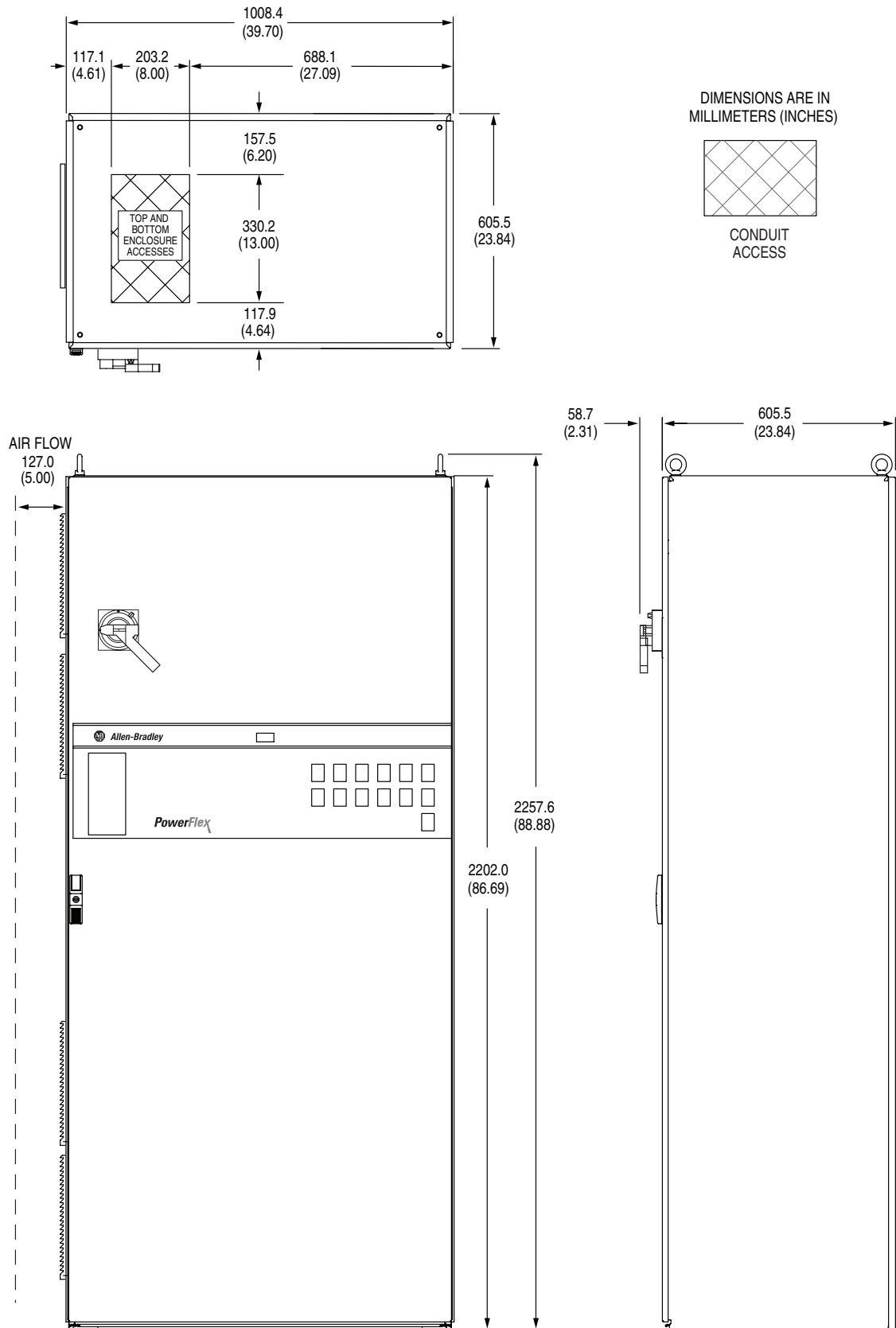


Figure 15. PowerFlex 700H 6 Pulse, Frame 10, NEMA/UL Type 1, 300...350 Hp - No Bypass

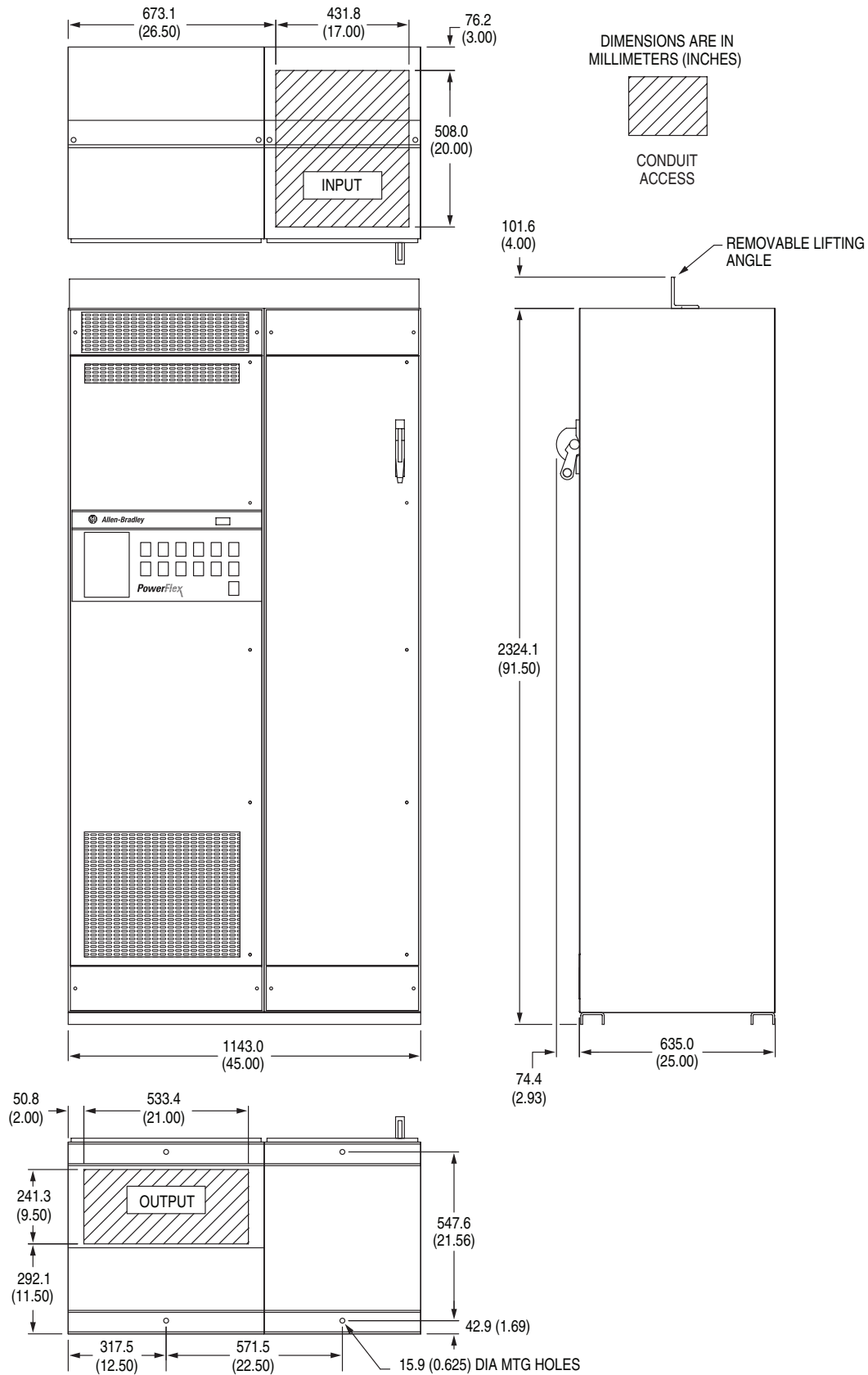


Figure 16. PowerFlex 700H 6 Pulse, Frame 10, NEMA/UL Type 1, 300...350 Hp - with Bypass

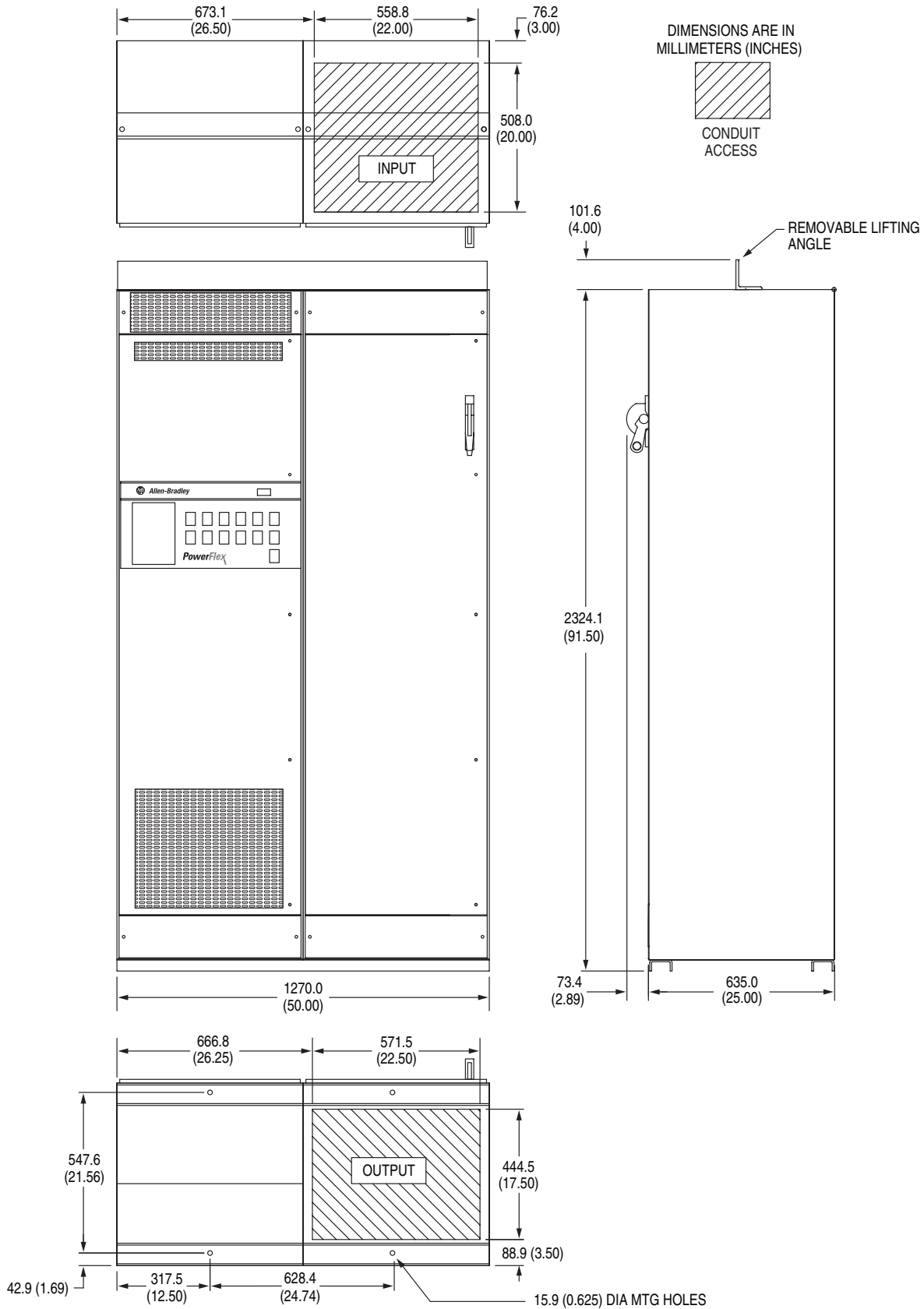


Figure 17. PowerFlex 700H 6 Pulse, Frame 10, NEMA/UL Type 1, 400...450 Hp - No Bypass

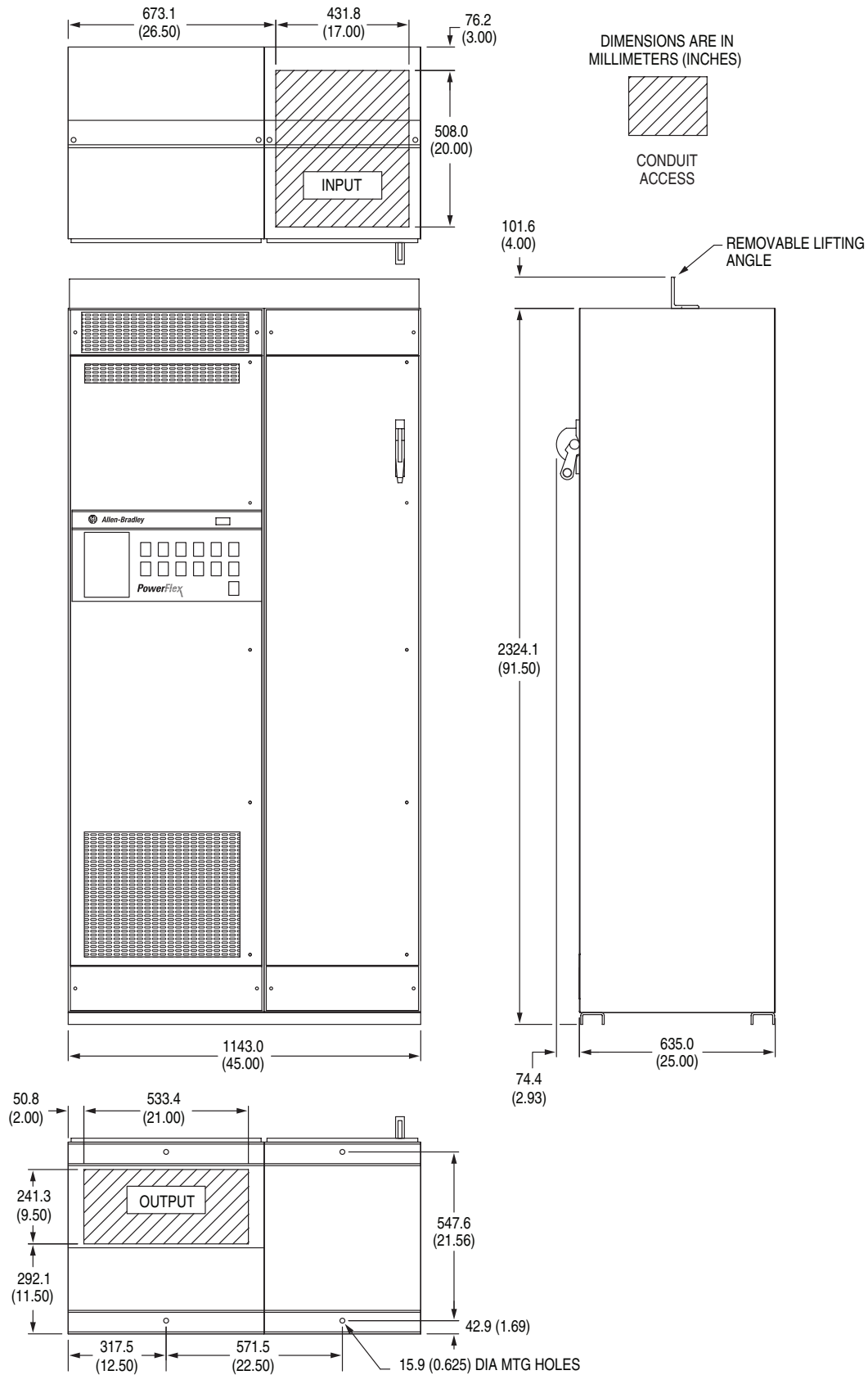


Figure 18. PowerFlex 700H 6 Pulse, Frame 10, NEMA/UL Type 1, 400...450 - with Bypass

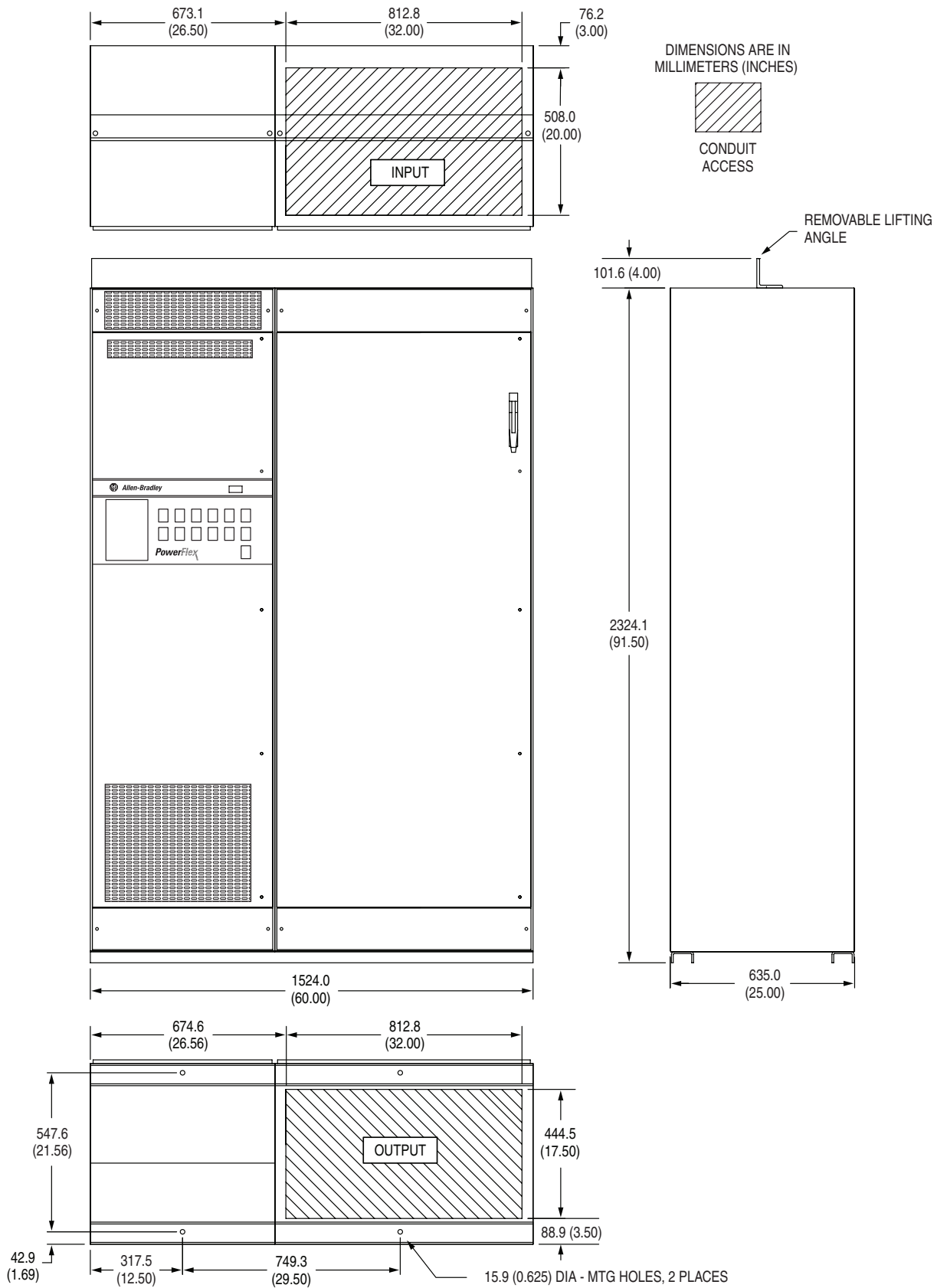


Figure 19. PowerFlex 700H 6 Pulse, Frame 11, NEMA/UL Type 1 - No Bypass

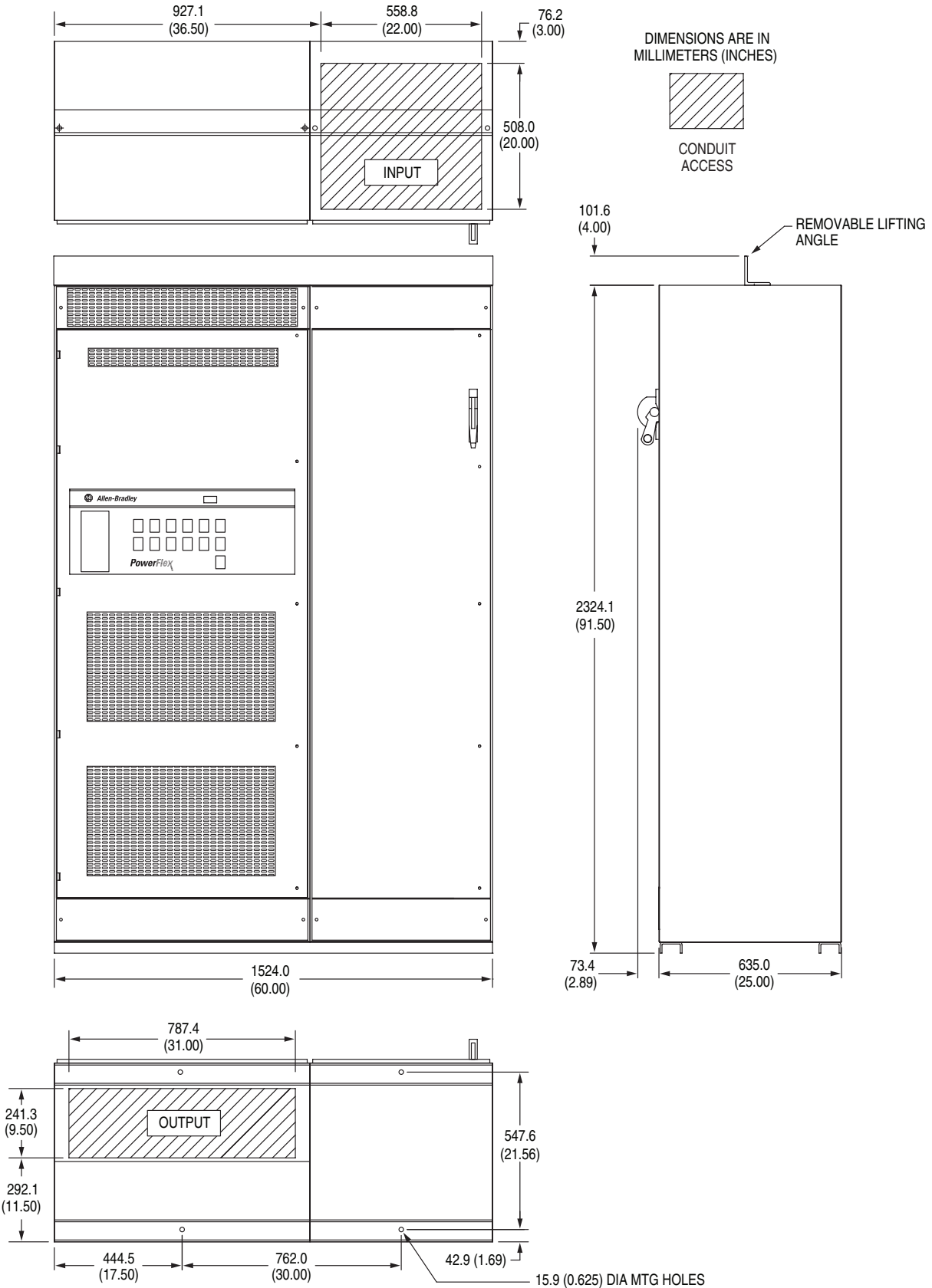


Figure 20. PowerFlex 700H 6 Pulse, Frame 11, NEMA/UL Type 1 - with Bypass

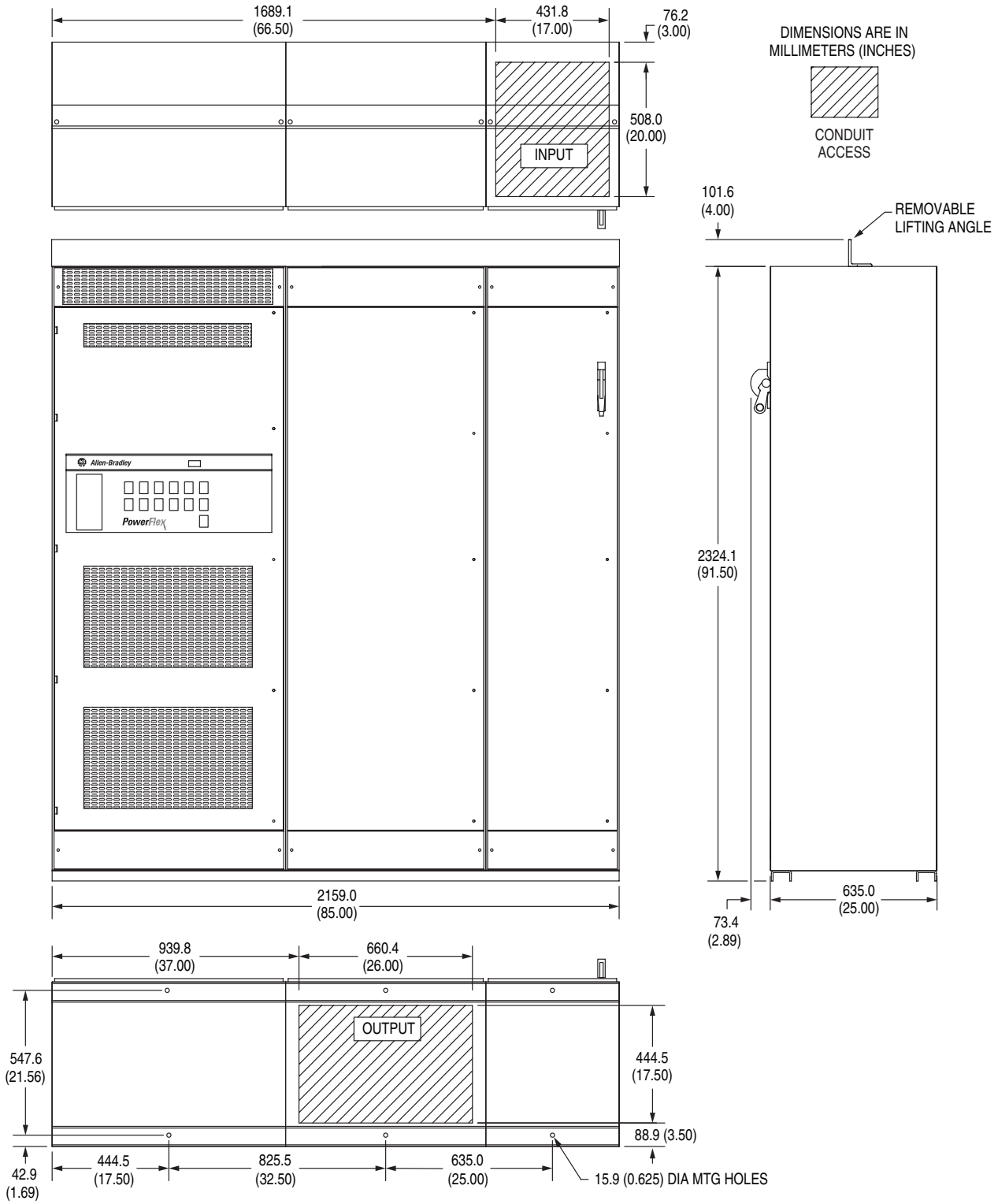
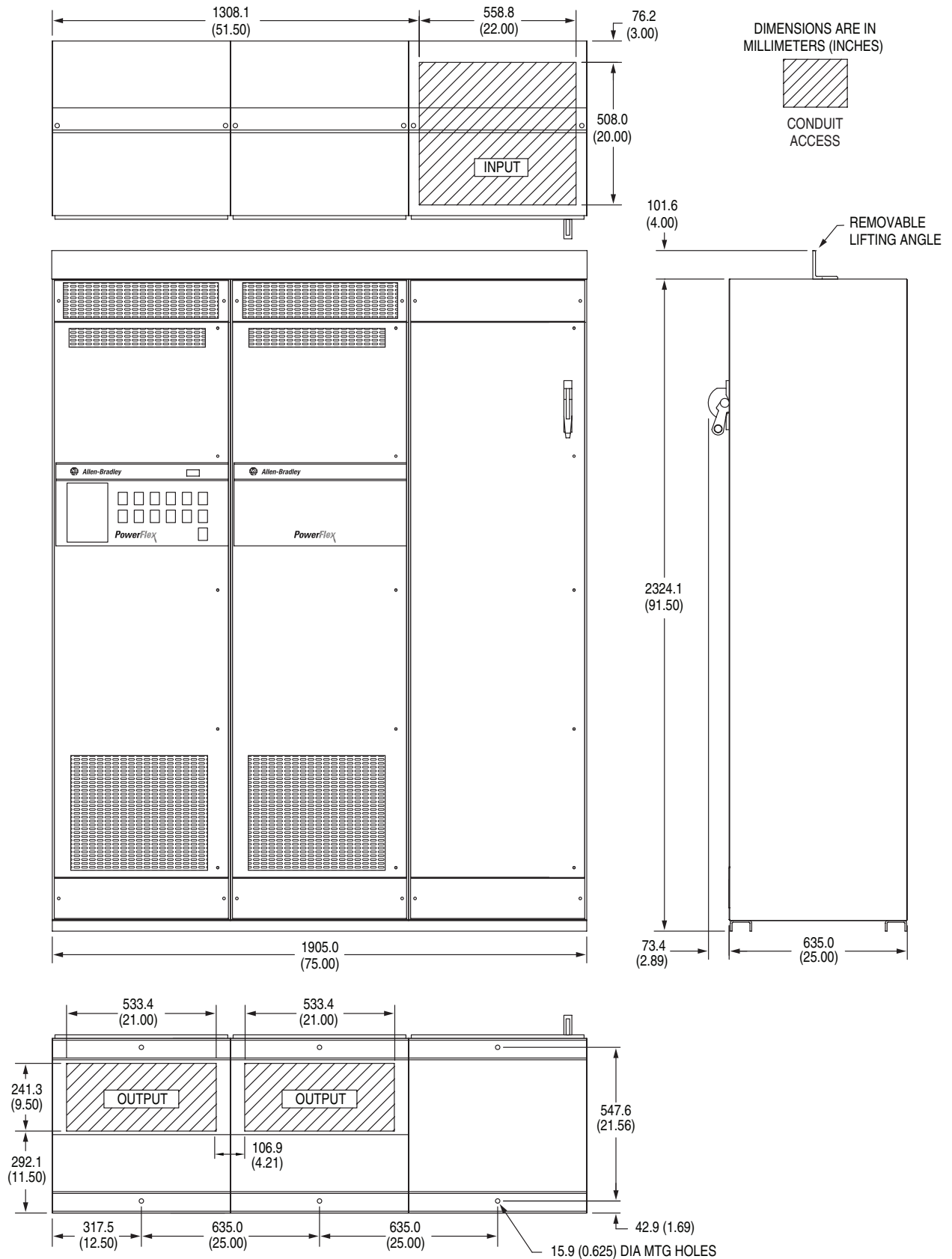


Figure 21. PowerFlex 700H 6 Pulse, Frame 12, NEMA/UL Type 1 - No Bypass



Dimension Drawings - 18 Pulse

Figure 22. PowerFlex 700 18 Pulse, Frame 3, NEMA/UL Type 1

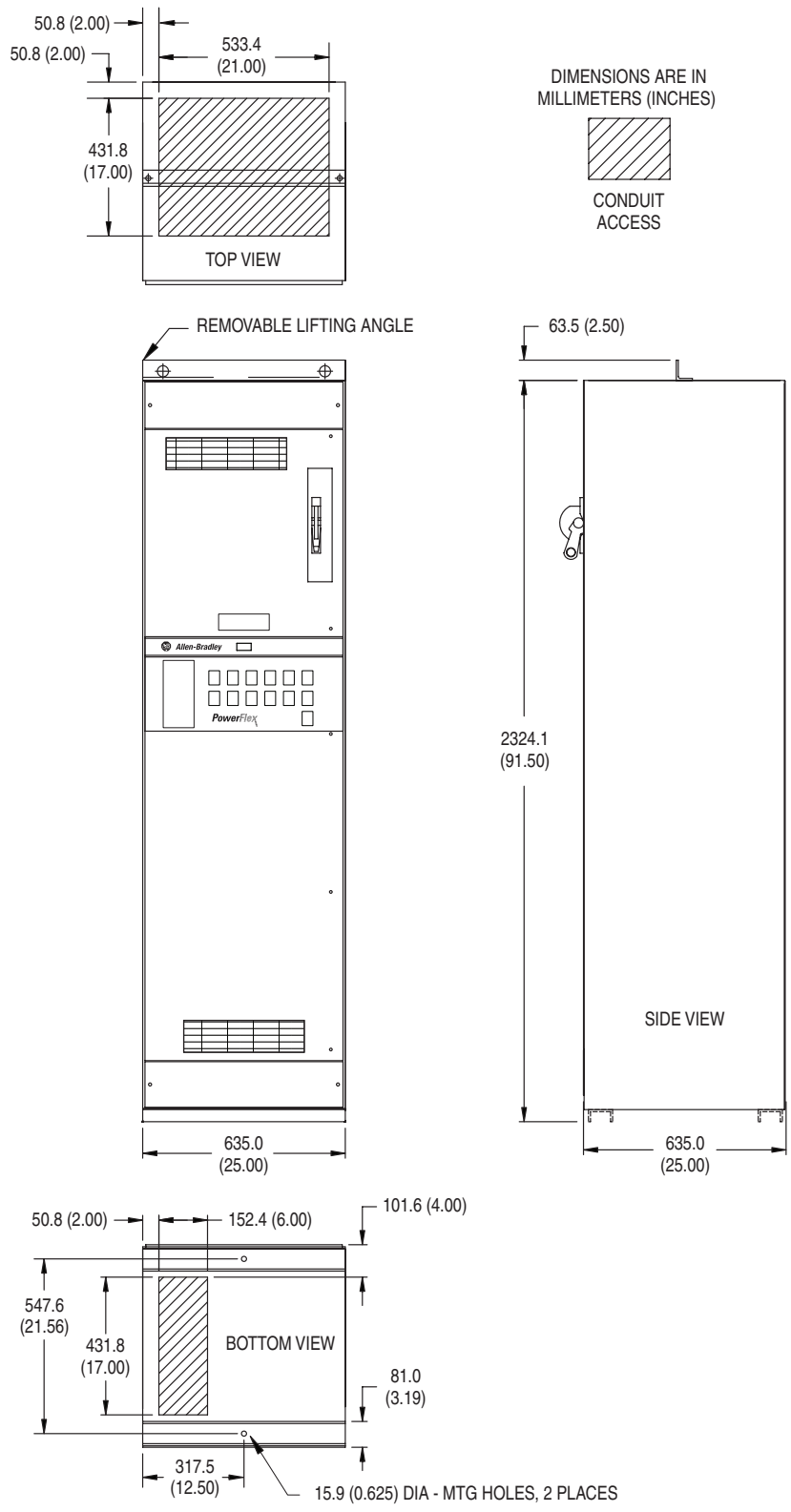


Figure 23. PowerFlex 700 18 Pulse, Frame 4, NEMA/UL Type 1

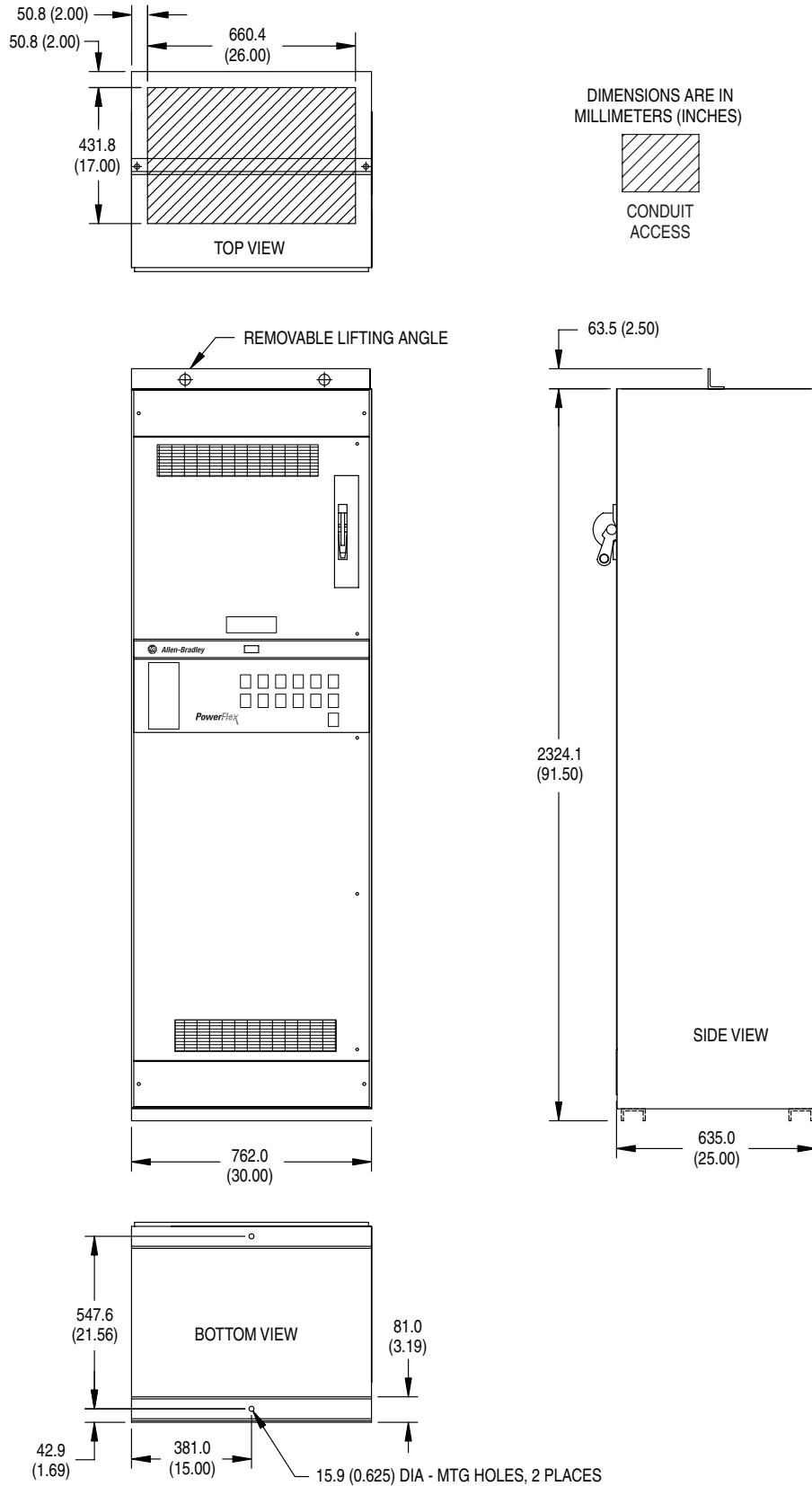


Figure 24. PowerFlex 700 18 Pulse, Frames 5 & 6, NEMA/UL Type 1 - No Bypass

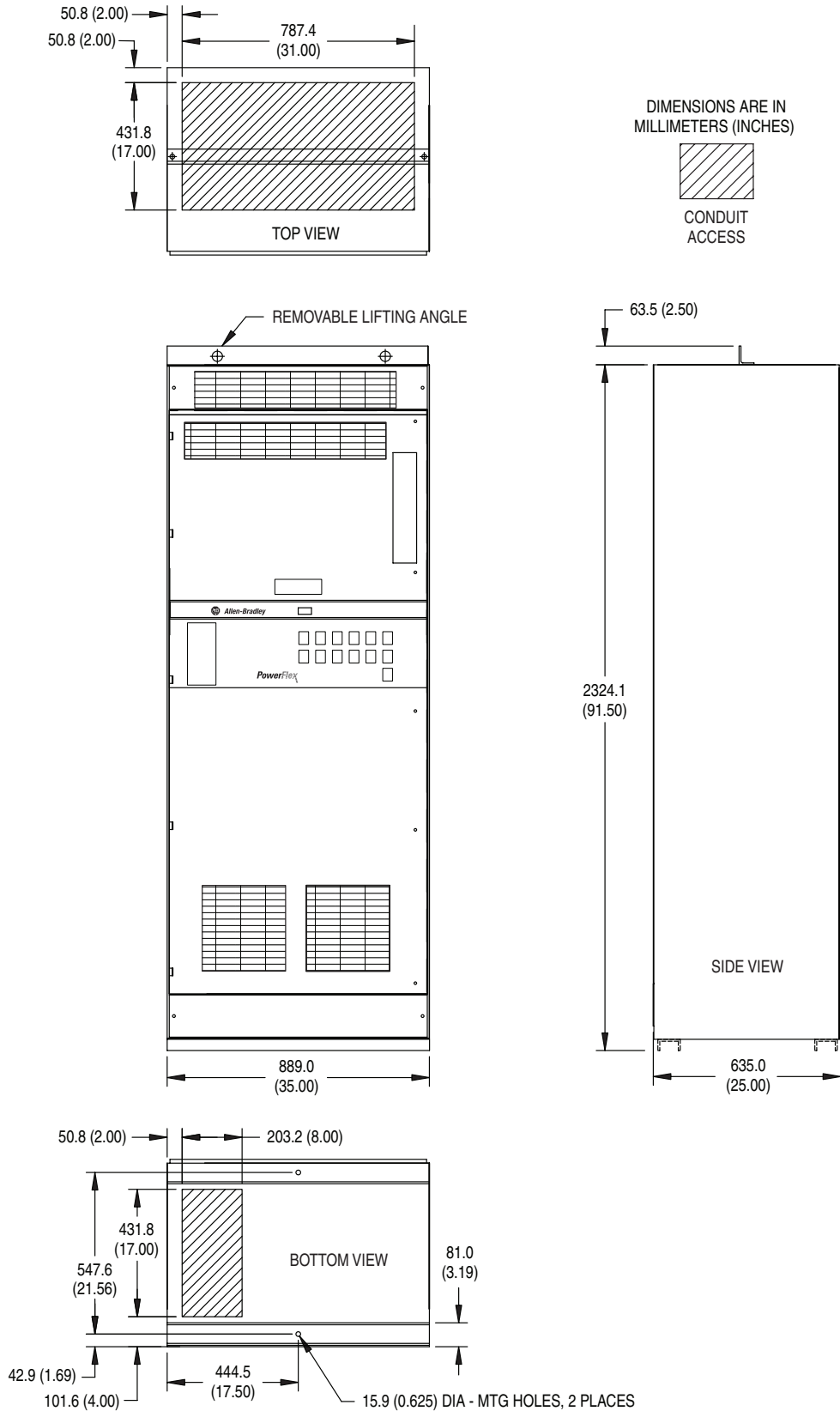


Figure 25. PowerFlex 700 18 Pulse, Frames 5 & 6, NEMA/UL Type 1 - with Bypass

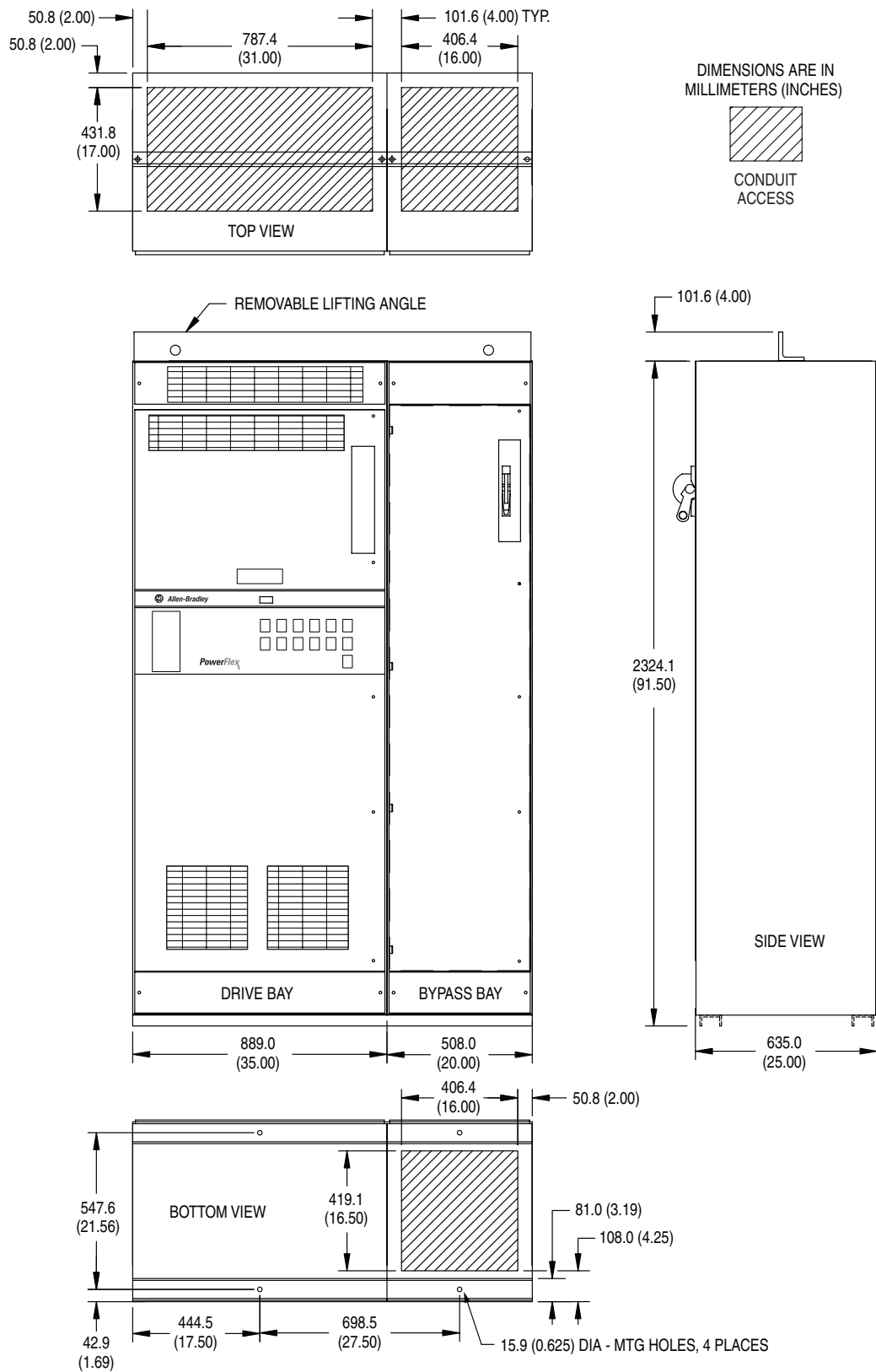


Figure 26. PowerFlex 700H 18 Pulse, Frame 9, NEMA/UL Type 1 - No Bypass

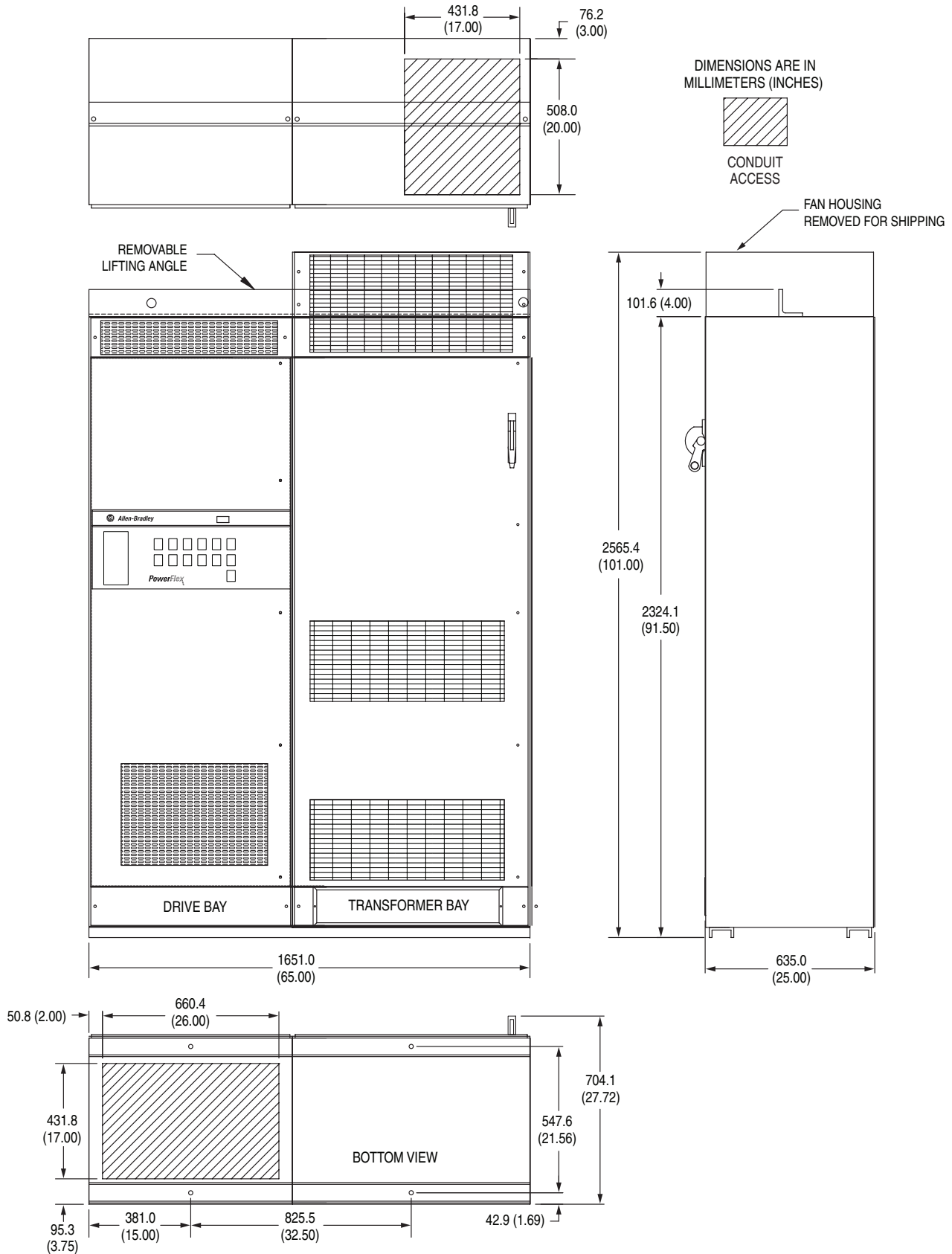


Figure 27. PowerFlex 700H 18 Pulse, Frame 9, NEMA/UL Type 1 - with Bypass

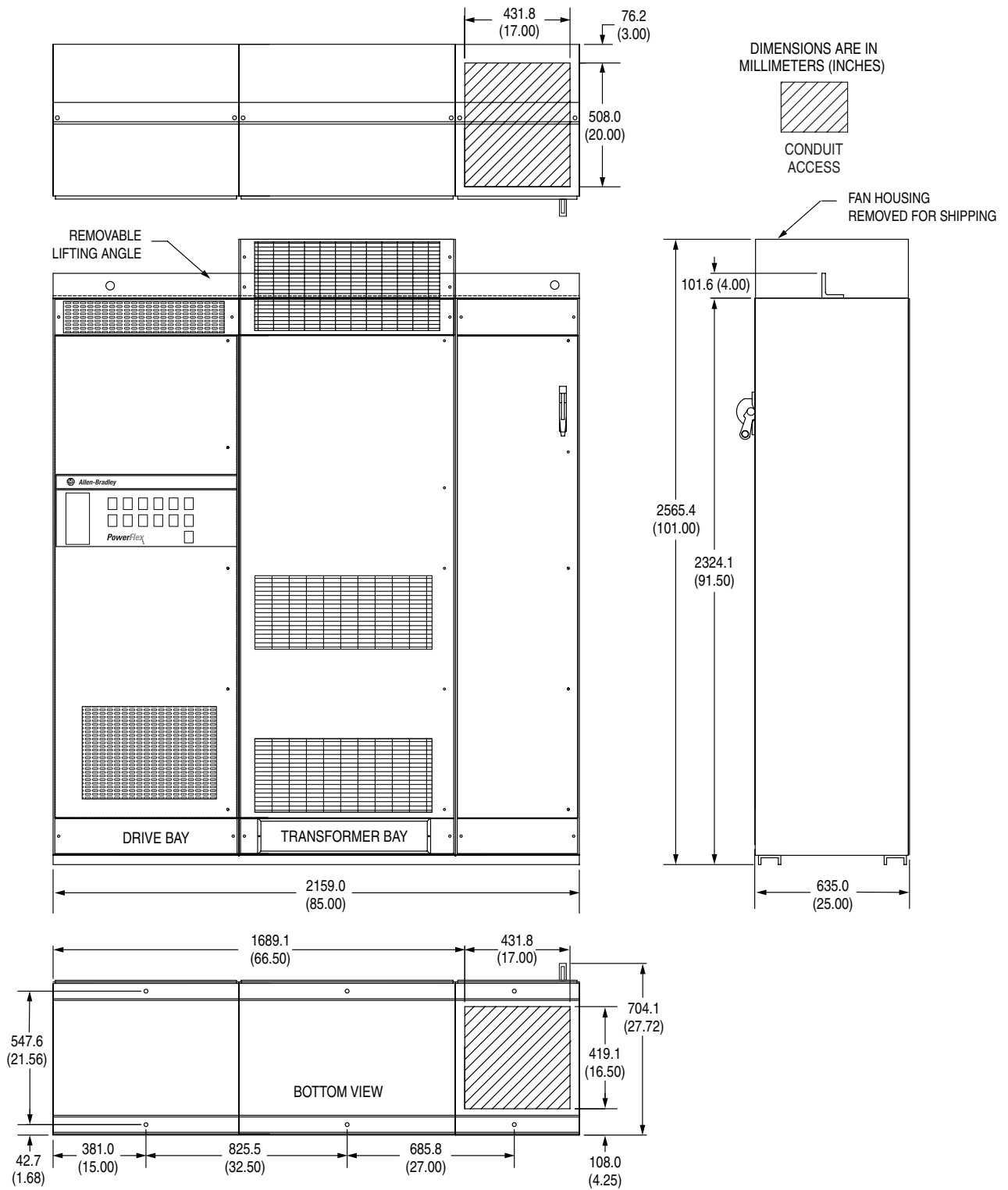


Figure 28. PowerFlex 700H 18 Pulse, Frame 10, NEMA/UL Type 1 - No Bypass

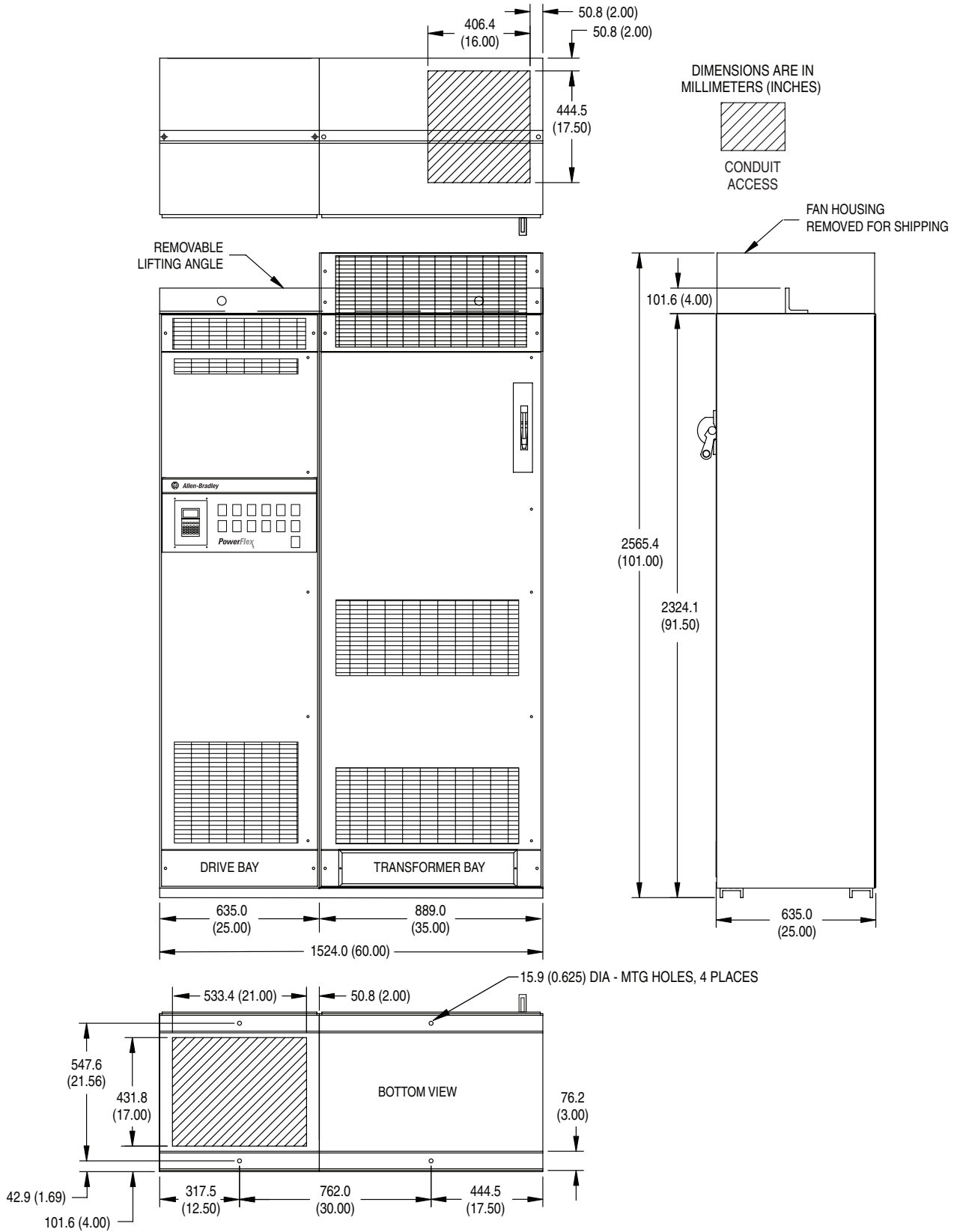


Figure 29. PowerFlex 700H 18 Pulse, Frame 10, NEMA/UL Type 1 - with Bypass

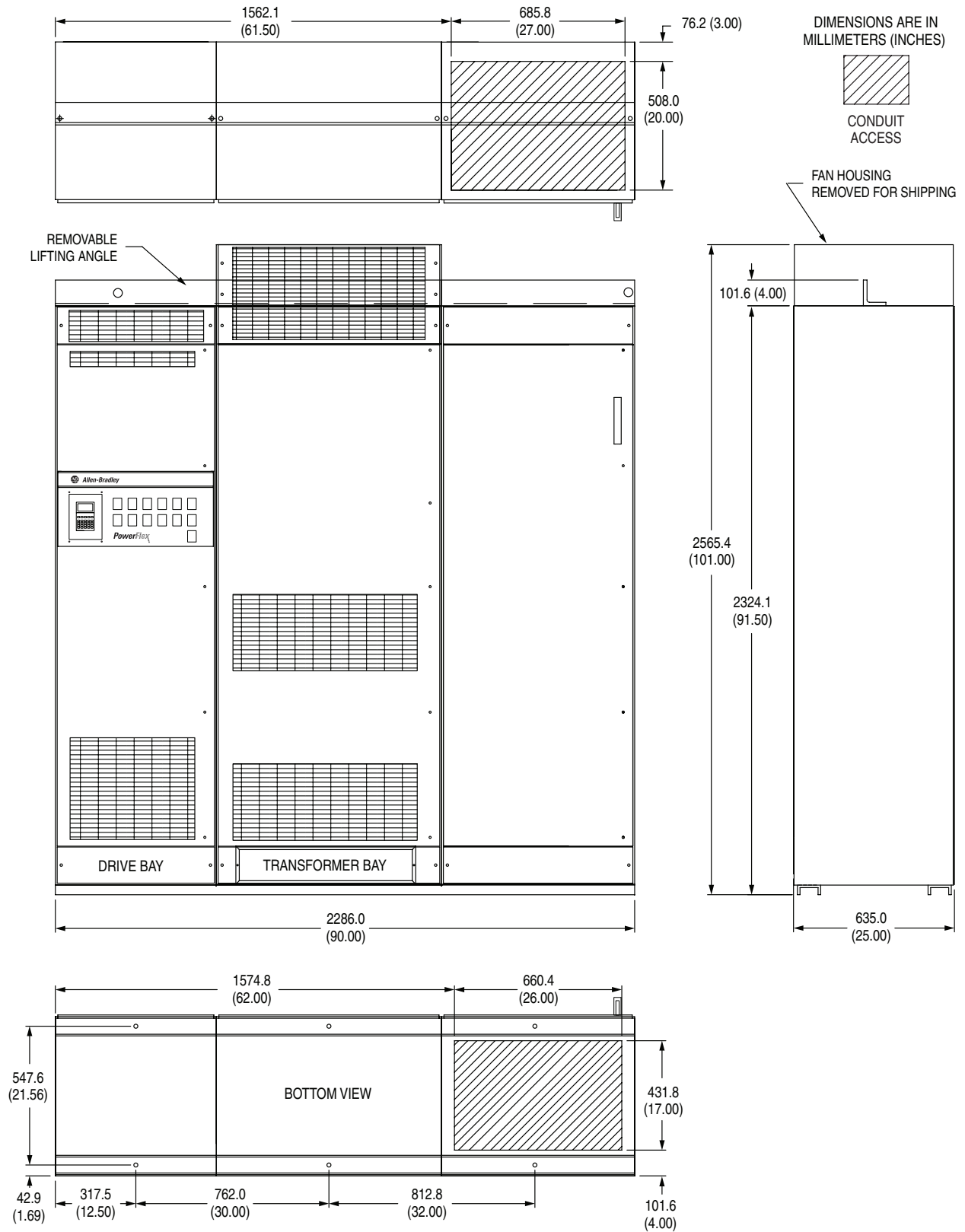


Figure 30. PowerFlex 700H 18 Pulse, Frame 11, NEMA/UL Type 1 - No Bypass

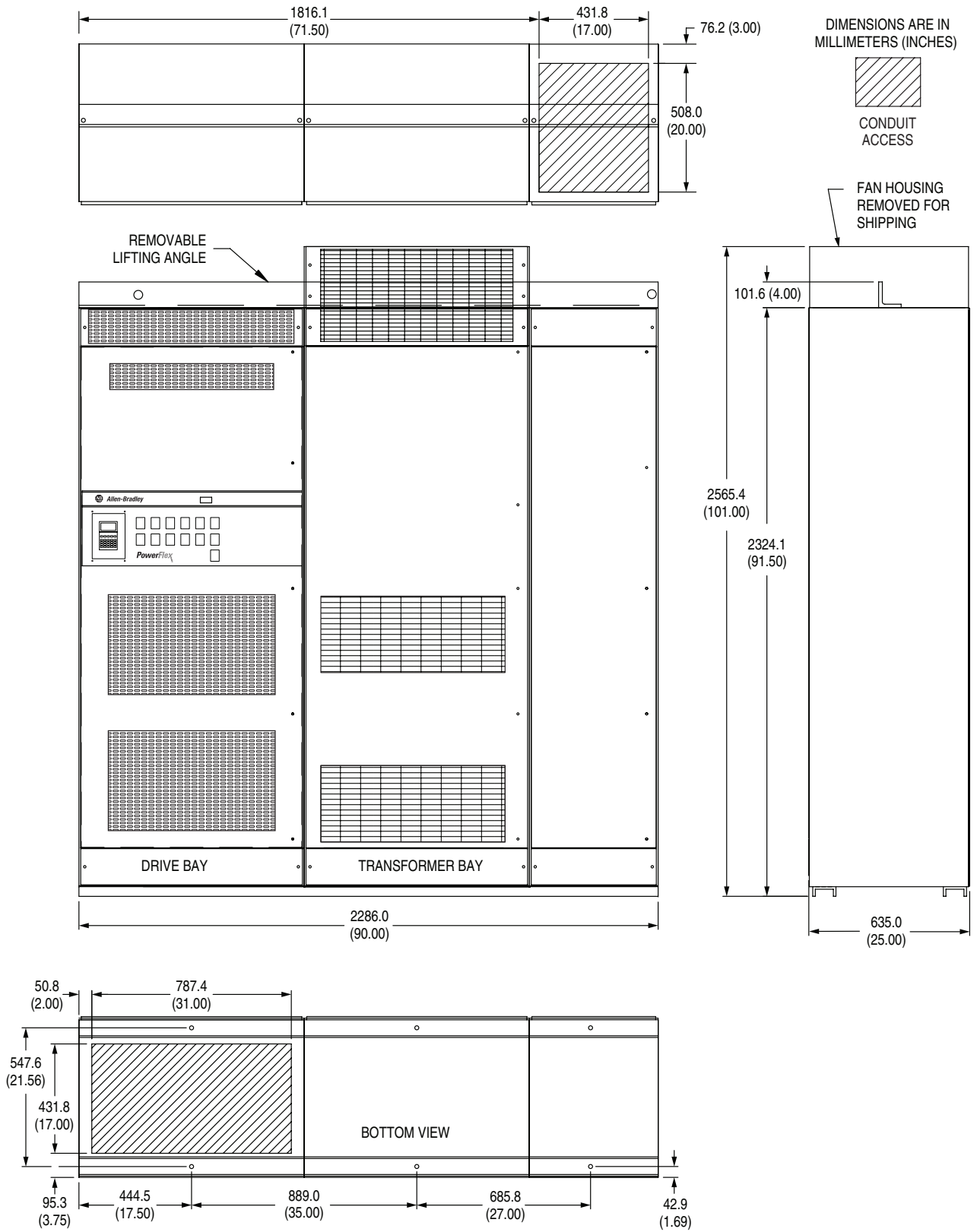
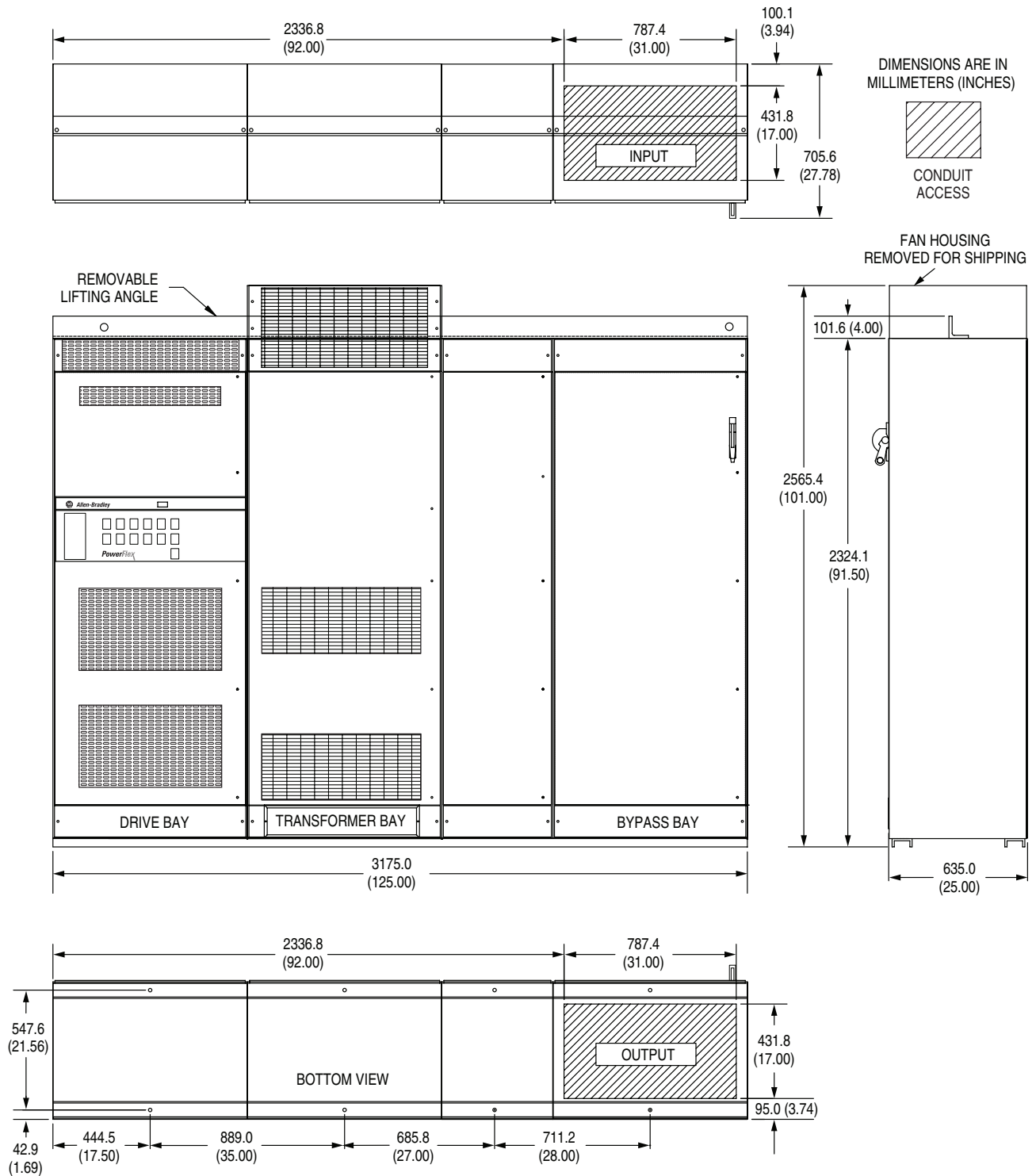


Figure 31. PowerFlex 700H 18 Pulse, Frame 11, NEMA/UL Type 1 - with Bypass



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Power, Control and Information Solutions Headquarters

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